

# THE AMERICAN PSYCHOLOGIST

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*The Council of Representatives has elected JOHN G. DARLEY Executive Secretary of the American Psychological Association. He will succeed ROGER W. RUSSELL, who has resigned to become Professor and Chairman of the Department of Psychology at Indiana University in September 1959.*

*JOHN G. DARLEY, presently Professor and Associate Dean of the Graduate School at the University of Minnesota, will bring to his new position a thorough knowledge of the APA's affairs as well as his long experience as a psychologist in a leading university.*

*The Council of Representatives by its choice makes clear the importance with which it views the role of the Executive Secretary in American psychology.*

WOLFGANG KÖHLER

*President*

American Psychological Association

## MAN'S FORGOTTEN WEAPON<sup>1</sup>

ANNE ROE

New York University

WHEN I gave a title to this paper, several months before I wrote it, I was thinking primarily in terms of defense: defense against subtle invasions of personal privacy, defense against our national enemies, defense against the destruction of man. Several additional months of brooding over the issues have led me to see my thesis in a somewhat broader framework. The issue of an adequate defense remains; but there is a greater issue, and that is a constructive one.

The forgotten weapon to which I have reference is also our potentially most effective device for constructive advance. It is, simply, awareness, consciousness, man's awareness of himself and of the world around him. It is my thesis that we can, and must, deliberately exploit this characteristic, that its intentional development and use is as essential for our survival as men as it has been for our evolution into man. Consideration of the role that this has played in biological evolution in the past may give us some background for discussing its possibilities in the biological and cultural evolution of the future.

Such consideration is also particularly appropriate in this centenary of the publication of the *Origin of Species*. Since Darwin, the modern theory of evolution has incorporated the discoveries of paleontology and of genetics. Now the fact of evolution is beyond serious dispute, and not only the broad outlines of the history of life, but the mechanisms by which its myriad forms have evolved are well established.

Although it is clear that evolution has had neither plan nor purpose, it is meaningful to speak of many of the changes that have taken place as progressive. Some of these changes have particular bearing on our considerations. They have been discussed extensively by Simpson (1949) in the *Meaning of Evolution*; what follows is largely paraphrased from that book.

A major element in evolutionary progress has been change in the direction of increased awareness and perception of the environment and increased ability to react accordingly. At higher levels this involves increasing complexity and specialization of sensory organs, nervous systems, and other coordinating mechanisms; and the trend has culminated in man who has incomparably the best perceptual, coordinating, and reacting apparatus so far evolved. In the new sort of evolution now characteristic of man, that of transmitted learning and social structure, these organic receptors have been supplemented with inorganic receptors of enormous range and delicacy invented by man.

The new sort of evolution, the evolution of culture, is specifically human, and it is vital for us to appreciate its relation to and differences from organic evolution. One of the basic contrasts between them lies in the way in which mutations arise. In organic evolution, these arise without any relation to the needs or desires of the organism and their fate is not under the control of the organisms carrying them. In the new evolution, new factors arise as elements in consciousness, and in relation to the needs and desires of individuals. They arise in consciousness, but are influenced by and sometimes directly produced by elements in the unconscious. Their fate is not mechanistically determinate but is subject to the actions, values, judgments, and decisions of the group.

This means that the new evolution becomes subject to conscious control. "Man, alone among all organisms, knows that he evolves and he alone is capable of directing his own evolution." Certainly his control is neither rigid nor absolute; he must work with the changes that arise and disseminate these by existing or newly developed mechanisms. New ideas do not always arise at precisely the most useful moment; when they do arise, their dissemination is often blocked by inertia and active opposition. "But we do not conclude that man cannot control floods because he cannot make rain fall upward." We do have a measure of conscious control over what becomes of us, and it is our re-

<sup>1</sup> Presidential Address to Division 12 of the American Psychological Association, Washington, D. C., August 29, 1958.

sponsibility and ours alone to choose to develop our capacities or to choose not to. We must supply our own purposes, and our decisions as to what these purposes should be must be based on human evolution.

Of other biologists who have also commented that man now has the power of choosing the direction of his own social evolution, Huxley (1957) has been most insistent in pointing out that man has in fact new responsibilities whether he likes it or not. He says that man is now, in effect, made "managing director of the business of evolution," without warning and without the possibility of refusing the job. Whether he approaches the job by first finding out what the possibilities of human nature are, as he has been exploring the physical possibilities of the world, or whether he lets things drift without any conscious attempt at control, he is still responsible. Huxley notes the unrest in the world resulting from the discovery by the economically underprivileged nations that people need not be underprivileged, and the current difficulties arising from their reasonable desire for a fair share of the world's goods. He feels that this must be resolved, but that the same sort of unrest will emerge when people realize that no one need be denied the satisfactions of learning, of beauty, and of full self-development, but that this unrest, too, will be resolved and that in a reorganized world the underprivileged will disappear.

Now I, for one, find the logic of these arguments inescapable, and so must ask not only what responsibility I have as an individual, but what obligation is laid upon me as a psychologist. This obligation I find a very grave one, and I am attempting in some slight measure to meet it in this paper. There is no need to belabor the point that only man is a danger to man. Surely, then, it is incumbent upon us as students of man, as well as upon other social scientists, to reassess our roles, and if need be to redirect our activities. I do not decry our past preoccupations, but I confess to a great weariness with the present concentration upon technical minutiae, with better and better research design for matters of less and less importance. Indeed, it often seems that the correlation between goodness of design and importance of project is remarkably high, and negative.

Since as individuals or as a species we cannot evade our responsibilities and remain men, let us cast up our assets and liabilities, let us make some

decisions, let us at least not lose the world by default. But what guides can we use? Let me suggest two basic propositions: first, that it is good for the species man to continue to inhabit the earth; and, second, that the ideal towards which we should strive is that every individual on earth should have the possibility of realizing his greatest potentialities, his own potentialities, not those that someone else thinks he should have. At first glance, these propositions may sound obvious and unobjectionable, but let us examine some of the hidden assumptions.

The survival of *Homo sapiens* does not mean that any of his present institutions, governmental, religious, social, must survive unchanged. On the contrary, all of these *must* change if man is to survive; and, if we do not understand this and accept it, we are lost. Must Communist institutions change? Yes, but so must ours. Must Mohammedanism change? Yes, but so must Christianity.

There are those who would argue that it would be better for mankind to perish than to relinquish old beliefs and old attitudes. Political or religious or any institutions that cannot evolve with man, that cling to old, now irrelevant doctrines rooted in earlier misconceptions, but that claim absolute truth or absolute authority, these would sacrifice mankind rather than themselves. This is a real and present danger. It can only be dealt with if we are fully aware of it, if we know what it would cost us to cling to the past, to refuse to see the present for what it is.

The flat statement that every man should have the opportunity to realize his own potentialities has behind it an assumption of major importance. That is, that, in the over-all picture, these potentialities will be good. This, too, is unacceptable to many. I shall not take time to defend this position now; it has been ably done by many, and by many of our own profession. I now want only to make the implications explicit.

If you will accept these premises, at least for the sake of the argument, what then? It is only so far as we are aware of our beliefs and of our prejudices that we can evaluate our behavior, and can make reasonably rational choices. Awareness of our own needs and attitudes is our most effective instrument for maintaining our own integrity and control over our own reactions. This is not new. Most therapists, whatever their technical schools, would, I think, agree with Kubie (1957) that

... greater mental health is achieved whenever important areas of life can be brought under the domination of conscious and preconscious processes (never exclusively, but to a major degree). Therefore, the goal of therapy is to shrink those areas of life which are dominated preponderantly by the inaccessible unconscious processes.

I submit that this is of such importance that it should be a major goal of all education, not a last resort for the ill.

In the last 10 years or so there has been a tremendous swing of interest back to the self, to ego-psychology, to conscious and rational processes; but we are only beginning to get a hint of the tremendous possibilities in the deliberate development of consciousness. In clinical circles the time when only the unconscious was a fit subject for discussion seems to have passed. But preoccupation with the unconscious has now developed, somewhat jejunely, in other circles. Most so-called motivation research, as well as subliminal perception, is aimed at exploitation of unconscious needs. The alarm and shock which has been a general public reaction to revelation of such techniques has not been alleviated by the fact, generally unpublicized, that there may not be much in the way of real evidence of their effectiveness, at least in their present forms. Naylor and Lawshe (1958) have recently concluded, following a rigorous review of the evidence, that

... there does not appear to be substantial evidence for subception as a distinct phenomenon. Until someone can demonstrate in an experiment which has complete and adequate controls that subception exists, the concern of many seems slightly premature.

But there is genuine concern over other possibilities of devious manipulation. The popularity of such a book as *The Hidden Persuaders* is evidence of such concern. On a technical level, there was the Rogers-Skinner debate (1956) of a few years ago, where essentially the same issue was raised. There is no question but what great political use has been made of manipulation of emotions. That there is, however, a potent weapon against all of this which is within reach of any who dare to use it has not been understood nor publicized. This weapon, again, is self-awareness. The perfect defense against the possibility of manipulation, whether by politicians, priests, or advertisers, through appeal to unconscious processes is to be thoroughly conscious of one's basic needs and attitudes. You cannot be easily manipulated if you

know more about yourself than the would-be manipulator does.

Awareness of these needs and attitudes is not only a defense against manipulation by others, it is a defense against misperception and bias in oneself. Such misperceptions and biases among scientists have always existed, but never before have they been of crucial importance for society. There is no possible doubt that the successful research scientist, of whatever variety, is deeply ego-involved in his work, although this involvement may be of various sorts. Furthermore, within some limits, it is true that the greater the degree of ego-involvement, the greater the possibility of creative advance. But this carries the corollary that an intensely biasing effect in the scientist's perception of his own work as well as that of others is practically inevitable. This can only be mitigated to the extent that he is aware of it.

That such ego-involvement may result in significant distortions, even of the ordinary psychophysical scales, has been experimentally demonstrated. It affects such things as the recording of responses in accordance with personal belief in or rejection of the hypothesis being tested. It must surely be a factor in the remarkable differences in data reported by physicists who do and physicists who do not believe in fall-out danger—to use only one example of the social importance of the phenomenon. I would go so far as to say that no man, on whose opinion grave decisions rest, should dare to offer that opinion without knowing well what personal significance the issue has for him. He must be sure, for example, that it is not the protection of his own theory or discovery that motivates an insistence that a certain line be followed, and the public has a right to expect that he has considered this possibility seriously. The difficulty of course is that this is a private matter, and only he can be sure; but the public should demand that he be sure. Yet is there anything in any scientific curriculum which not only demonstrates to the student the inevitability of bias, but also gives him any basis for dealing with it in himself?

We psychologists are not free of such biases. I suggested some years ago that our ideas of what constitute the mature personality were very possibly biased by our own personalities and to a considerable extent are an ego-ideal which we have generalized into an ideal for society. Nor do our limitations stop with that. We are well aware of

perceptual selectivity, but not very willing to open ourselves to determination of just wherein our own individual bases for selection lie, even though this might greatly improve our professional competence, in addition to personal gains. For example, even among psychologists who have led in this, the therapist who makes transcripts of unselected hours available to others for study, as well as to himself, is very rare. Most of us cannot relax our defenses to that extent. Yet I think we must do so.

Some time ago I devised what I called the Dyad Refresher Plan. This was an attempt to make it possible for psychologists working in hospitals and clinics to share their own expertnesses and check their own biases as part of their regular procedures. Listening to each other in staff sessions, even consulting on protocols, is a most inadequate exchange. The plan was very simple: just that every so often the staff paired off, and each of the pair observed the other in his usual procedures, with such discussion afterwards as seemed appropriate and with the firm provision that such discussion was privileged. On the next round, different pairs would form, and so it would continue. I urged this in many institutions with all the eloquence at my command. It was listened to very politely, if uneasily; but it was, so far as I know, never implemented. How many of us who teach invite consultation from our colleagues on the efficacy of our teaching? Certainly the research worker invites his colleagues to look at his work, or rather at his report of his work, but we have already discussed the possibility of the entrance of bias into the work itself. If we cannot trust ourselves to our colleagues, how can we expect others to trust us?

We need to extend this sharing beyond our limited specialties. Stuart Cook (1958) has urged even more far-reaching and more important collaboration among psychologists. He was concerned primarily with the problem of the disruptive possibilities in the increasing professionalization of psychology, and he emphasized the great need for regular and frequent communication between the research worker and the psychologist in practice, pointing out that we need very much to keep accessible to the whole body of psychological theory the insights, the hunches, the observations which those who work with individuals can most effectively provide for us.

They [such observations] insure the introduction into theory of variables or complexes of variables which, though

they may be difficult to deal with, are of known import for behavior. They serve to balance the effect of the analytical processes of research and theory which lead us to simplify and condense. Carried out with links established to behavior as observed around us, such analytical processes are fruitful; based only upon phenomena germinated in a laboratory hothouse, they may well come to nothing. Concern with such laboratory phenomena, although obviously instructive, is kept in better perspective if we confront periodically the behavioral regularities of the natural environment. . . . Nothing requires greater effort than a disciplined analysis of one's experience for whatever reason it be carried out. Only a rare will and intellect are adequate to the task unaided. For most of us, the presence of colleagues would be necessary to keep us going and to help sort out the occasional useful thought from the expected abundance of duds. In order to provide for such mutual assistance among psychologists in professional service, we would need a new institution: a tradition of participating in small groups of collaborating associates who would meet regularly to discuss relevant experiences and mutual problems (pp. 640, 641).

Others have been similarly concerned. Halpern, in her Presidential Address to the New York State Psychological Association (May 3, 1958), reported a survey which showed that an overwhelming number of our young psychologists were interested only in the practice of therapy, and, I would add, in a disturbingly limited way. Halpern went on to say:

I am a little appalled by the fact that in all this clamor about treatment, about training for therapy, about improvement in treatment techniques, one hears only a very few weak, small voices talking about prevention. . . . What I am concerned about and what I am opposed to is our concept of ourselves as primarily, almost exclusively a service group, dedicated to the curing of emotional ills. Practically nothing is ever said about using the knowledge we gain from our experiences with treatment and from other sources to validate the personality concepts with which we are operating and find ways to relieve the present extreme need for treatment. It seems to me there is something a bit amiss with a group of scientists who are so overwhelmingly service oriented and who, recognizing that life adjustment has been increasingly complex and difficult, offer to cure the ills resulting from the present state of affairs, but do little or nothing to help society learn how best to meet their interpersonal, emotional and social problems so that the present seemingly all-pervasive disturbances may be avoided.

It seems quite possible that in our concern with status, with the right to do what we feel we can do, we have seriously limited our exploration of what we could be doing. We have rallied to a finger-in-the-dike approach. This is no doubt admirable, but it is not adequate. My proposal es-

entially is not that we build new dikes, but that we drain the ocean.

We have, for example, been remarkably reluctant to proceed in the general field of education. I am not now talking about educational techniques, or progressive or unprogressive schools, but about public education in psychological knowledge. I do not know how many high schools there are now in which psychology is an elective subject, but I think there are not many. I know of none in which psychology is required, and I have run across only one discussion of the possibility of introducing it into elementary school.

I suspect that such a suggestion will horrify many people. Psychology, dealing with emotions, as some at least of it does, is highly dangerous, and you have to attain a certain age before it is safe for you to hear of it. I submit that this is ridiculous. Children's acquaintance with emotions is much more profound than their acquaintance with other aspects of the world. If we are ever to raise a generation of aware and confident people, we must deliberately start in infancy to help them become freely aware of themselves, and of what it is to be a human; to be able to accept and control and enjoy their emotions, their thoughts, and their bodies; to be able to tolerate their own and other people's problems.

We have made some stabs at parent education, but this can only be too little and too late. We know much about the crippling effect of repressions, but what do we know of techniques for avoiding these? Our mental health activities have concentrated much more on early diagnosis than they have on prevention, and more on prevention than on positive actions which would render "prevention" unnecessary. Very few of us are even honest with our own children, and teachers who have tried to be have often been fired. We rationalize much of this in terms of keeping the children in harmony with society, but what it generally comes down to is that the unlearnings we have come by painfully (in religion, in social behaviors, and so on) we hide from them, leaving them to struggle through the same unlearning, and hide it in their turn from their children. Brock Chisholm has put it:

Millions of children in the world are now being tied to the certainties of ten and twenty and thirty generations ago by this mechanism wherein each generation refuses to let its children continue from the point it itself reached. By advocating that we should free our children of the

"certainties" of their ancestors, I do not mean that we should abolish religion or religious teaching. . . . It is the teaching of unchangeable attitudes that makes trouble. The problem is not created nearly so much by the content of an orthodoxy as by the fact of an orthodoxy. It is not the teaching of an attitude—however it is taught—that is damaging, nearly so much as the teaching that it is fixed and final and that one is forbidden to think about it. This is damaging because children very early in their lives get the idea they should stop their thinking every time they run into anything uncomfortable or dangerous or threatening.

Now it is clear that we cannot get into the schools any teaching that will be objectionable to the majority of the parents, hence the problem of increasing awareness among the general public is basic. In the present anxious situation a better beginning can be made than we could have made some years ago. We are not ready to do what could be done, in view of the present concern with education in this country; we have no direct research, but we do have some knowledge that can be put to use, and we could, if we would, get more.

Let me make it clear that I am not suggesting the introduction into the kindergarten of a psychology hour every day, or a "course in" psychology in each grade. What I am suggesting for a beginning is an examination of the ways in which developing self-awareness can be encouraged within the present framework. As a concrete example, what of the content of children's readers? Could these not include stories relating directly to problems common and important to them? The arrival of a younger sibling is a pretty general problem. Is there any story about this in any child's reader? Is there anything which would help him realize that he is not alone in this, anything to make possible any perception or discussion of it outside of the emotion-charged family circle? Do we not avoid the problems which are the most important to the child and strive to turn his attention altogether to the things that seem important to us? Certainly he must learn to cope with the world without; he can do this more effectively if he can cope with the world within. I suspect that there are some principles and practices of yoga that could reasonably be adapted to child training without developing a nation of hypochondriacs. Physical education is not now designed to promote *pleasure* in bodily control. There is little that promotes genuine sensory exploration and esthetic appreciation. To be fully aware, to know and to enjoy one's self and

others, to tolerate problems in the certainty of an eventual solution, these essentials of a rich life are not taught in our educational system, but guarded against. I believe that even the "best-therapized" of us have not begun to approach the degree of awareness that will be possible for future generations if we do our work well. We have reached our present capacity for awareness as a result of biological forces over which we had no control. Having reached this stage, however, it is no longer possible for us to evade responsibility, whether we let things slide or take over.

Even when, as I believe we could, we do develop such a program of education, in or out of school, it will require much work to be sure that it is accepted, and acceptable. This means social studies of an even broader sort than have yet been contemplated, or at least undertaken. To make people aware of what is at stake, to increase their freedom to do what needs to be done, these seem almost insuperable problems; but they are problems that we must solve. When we consider how nearly impossible it has been to institute anywhere any beginning of population control, although it is clear that this is an absolute essential if even a modest standard of living is to be achieved and maintained in the world of the future, we realize how great the difficulties are. It is not only the flat opposition of theological and other groups with vested interests, it is also apathy. Only a sharp awareness of the total situation on the part of a significant number of people everywhere can overcome this opposition and this apathy.

There was an editorial (1958) in the *Nation* which noted with dismay that psychologists are involved in developing nuclear weapons. Some of the remarks were not well taken, but there was this point:

What [was asked] are psychologists for, except to make people aware of reality as a first step to coping with it? . . . Possibly some [psychologists] will consider using their insights, skills and techniques to bring home to people that

their own lives, the lives of future generations, and all the achievements of a billion years of human and pre-human striving are actually, this day, hanging in the balance.

I have urged that we must deliberately exploit that awareness which has evolved in man to the point that it has brought with it the inescapable necessity of choice. Certainly this is not simple, nor do I offer it as a guarantee of survival, but it is our only weapon against disaster. It is a two-edged weapon: it leaves us with no hiding place. If man is to survive, it can only be because enough men believe in their species enough to face the loss of other beliefs.

The lines are being drawn between those who will believe mankind is more important than any nation, any governmental system, any religion, any institution, any belief and those who insist that only one government or one religion or one belief is right and must continue unchallenged and unchanged. The lines are being drawn; and, when the time comes to stand up and be counted, count me on the side of man.

#### REFERENCES

- CHISHOLM, B. *Prescription for survival*. New York: Columbia Univer. Press, 1957.
- COOK, S. W. The psychologist of the future: Scientist, professional, or both. *Amer. Psychologist*, 1958, 13, 635-644.
- EDITORIAL. *Nation*, 1958, 186, 402-403.
- HUXLEY, J. *New bottles for new wine*. New York: Harper, 1957.
- KUBIE, L. S. Social forces and the neurotic process. In A. H. Leighton, J. A. Clausen, & R. N. Wilson (Eds.), *Explorations in social psychology*. New York: Basic Books, 1957.
- NAYLOR, J. C., & LAWSHE, C. H. An analytical review of the experimental basis of subception. *J. Psychol.*, 1958, 46, 75-96.
- ROGERS, C., & SKINNER, B. F. Some issues concerning the control of human behavior. *Science*, 1956, 124, 1057-1066.
- SIMPSON, G. G. *The meaning of evolution*. New Haven: Yale Univer. Press, 1949.

## TECHNICAL COMMUNICATION IN PSYCHOLOGY: A STATEMENT OF THE PROBLEM

BOARD OF SCIENTIFIC AFFAIRS<sup>1</sup>

IN establishing the Board of Scientific Affairs, the Council of Representatives instructed it to "have general concern for all aspects of psychology as a science, including the continued encouragement, development, and promotion of psychology as a science." BSA has undertaken an analysis of some of the major problems associated with the orderly and rapid advancement of psychological science and has concluded that, of all the problems considered, the efficient and effective communication of scientific information presents one of the most critical problems to psychology today. The present document has been prepared in an effort to specify the nature of the problem and to invite individuals and agencies of APA to consider ways in which it may be alleviated.

For present purposes the problem is limited to the communication of *scientific* information by and for psychologists and allied scientists. Excluded from consideration, therefore, are problems of communicating professional information and communicating psychological science to laymen, administrators, and others who have not mastered the language of psychology. There is, of course, no intent to imply that such other communications of psychological information are unimportant; they merely are not the concern of the present document. Hereafter, then, the term "communication" will be used as a short form of the terms "scientific communication," "technical communication," and "communication essential to the efficient and effective advancement of the science of psychology."

The problem of communication encompasses all of the familiar media of communication of scientific information, such as meetings and "newsletters" of informal special-interest research groups, scientific papers presented at regional and national meetings,

journal publication, monograph and book publication, and techniques for the storage and selective retrieval of either published or unpublished information. The inclusion of the entire spectrum of communication media is quite intentional. Indeed, BSA believes that the communication functions served by regional and national conventions, for example, cannot properly be considered apart from the functions served by our journals, and vice versa. The interdependence of the functions of different media of communication suggests that psychologists should self-consciously design a communication system in which the inherent capabilities and limitations of different media are matched with the specific needs or functions to be served. Only by the analysis of such a total system will it be possible to specify the required media, their principal functions, and the criteria in terms of which they should be evaluated.

A systematic approach to the communication needs of psychology highlights immediately the inadequacies of our present media, the inappropriateness of our expectancies with respect to these media, and the heavy hand of tradition in all this. The annual convention of APA once served as the forum for direct communication of each psychologist's research of the year to most of his similarly research-minded colleagues. In addition, even if not formally reported in a paper read before the national convention, it was possible to learn at the convention who was working on what, and how. Similarly, it was possible not many years ago for many graduate students to read a paper reporting on their research at a regional meeting. Present national and regional conventions cannot possibly serve these functions for all ongoing research, and yet the tradition of 10- to 15-minute reports of research results remains with us in much the same form as before—but with a progressively decreasing representation of research actually in progress. Certain modest innovations which have been introduced by a few divisional program committees deserve commendation and systematic evaluation in light of the larger needs for scientific communication.

<sup>1</sup> This statement has evolved out of the deliberations of the Board of Scientific Affairs over a span of two years. Due to rotation of membership on the board, not all members have had the same participation in its preparation—see signature at the end of this report. Although this report reflects substantial agreement among all of the members of the board, it must be noted that not all of them equally endorse all of its statements.

Tradition also greatly influences our present publication practices. There was a time when our journals carried so few articles that they served, not only an archival function, but also a quick "news" function. Under this set of values, psychologists became accustomed to publishing their research in archival form, experiment by experiment, even though this made for massive bibliographies of piecemeal reports. This practice was reasonable in those days because there was no overload of good research for the editor of the journal to publish, for the psychologist to read, or for the area scholar to master. But the situation is different today. Over even the past ten years, journals such as the *Journal of Experimental Psychology*, *Journal of Comparative and Physiological Psychology*, and *Journal of Abnormal and Social Psychology* have more than doubled the number of prime empirical articles published each year; other psychological journals have shown comparable increases, and there are many more of them. These changes have been accompanied by increasing delays in publication, increasing demands on the part of editors for consolidation of "piecemeal" reports into more substantial single publications, and decreasing capability of the individual scientist to "know" the literature. All of these trends increasingly emphasize the "archival" function of our journals and deemphasize the quick-communication function that the journals once served. Yet for the most part articles are still written to report specific experiments which, when taken alone, represent limited contributions. Psychologists have not yet adjusted to the fact that the journals can no longer serve the quick-news function and that the prevailing habit of piecemeal publication produces an unnecessary addition to the already overloaded archival storage and retrieval system represented by journal publication.

In the opinion of BSA, these traditional roles of our communication media need to be reexamined in the light of present and anticipated information loads and needs. Further, these needs should be those of the user of the information rather than those of the originator of the information. While it is a social fact that the origination of messages in technical communication, such as the presentation of papers at conventions and the publication of articles and books, has certain real psychic and economic values to the originator of the communication, the primary value to psychology, as a science,

is to be found in the effects of the communication on other psychologists, whether contemporaries or as yet unborn. It is not intended to deny the importance to the sender as well as to the receiver of rapid communication, where the replies and criticisms of receivers may influence the further work of the sender. However, submission of communications for archival storage is of value only if the archival storage results in retrieval of the information and use of it by other scientists, whatever may be the time and place of such retrieval.

Viewed in this way, the needs of scientific psychology for communication may be categorized into four classes: need for rapid communication of what and how, need for direct discussion and comparison of ideas and findings, need for adequate and efficient archival storage, and need for integrated retrieval of information.

1. The need for *rapid communication* of messages to other research workers concerned with the same problem area has always been with us, but it becomes ever more important as the rate of acquisition of scientific knowledge increases. The messages involved in such rapid communication may be information about methods, techniques, apparatus, or results (preliminary, piecemeal, or conclusive); but the important criterion is that communication be rapid. A second criterion for this rapid communication is that it be selective, in the sense that it reaches other scientists who have a special interest in knowing that such has been done or is being done and that it reaches a substantial proportion of this special-interest group.

When the traditional media are examined with respect to this need, it is obvious that the annual convention falls short in several ways: (a) it cannot permit reports, however brief, from all the investigators who are working in each of the specific areas of psychology; (b) the overcrowding of the convention program, as well as factors which reduce the attendance of members of the profession at the conventions, results in the communication being received by only a limited number of the desired recipients; and (c) the "abstracts" of papers presented are too general to be of much more than alerting value to the whole community of potential special-interest recipients. Special-interest meetings, whether held at annual conventions or as separate meetings of interested scientists, may overcome these deficiencies to some extent.

Journal publication obviously does not satisfy

this need since the processes of screening, editing, and publishing reports of research suitable for archival storage cannot be properly accomplished in the brief time allowed. If, as seems to be the case, there is a genuine need for quick communication of information to all members of special-interest groups in scientific psychology, it would appear that a new type of publication is required. The possibility of establishing "newsletters" to be operated by special-interest groups should be explored. Perhaps a publication like the brief reports section of *Science* would be appropriate, if an attempt were to be made to serve all of scientific psychology by a single publication. Or, it might be advisable to devise a system whereby abstracts of research reports are given immediate publication, leaving to editors the choice from these of articles for more detailed archival publication.

2. There is also need for *opportunities for discussion and comparison of findings* among scientists of common interests. Face-to-face meetings of scientists permit rapid identification of sources of conflict in empirical results or theoretical notions and the generation of a common base of technical information. They also provide for special-interest groups the opportunity to establish formal or informal channels of communication within the area of their interest.

These functions seem to be well served by some symposia and special programs arranged for annual conventions, by special-interest meetings, and by "summer" seminars, all of which have been increasingly employed by psychologists over the last several years and deserve continued encouragement by APA and by the sponsoring and supporting governmental agencies and private foundations. It is noteworthy that formally sponsored "summer seminars" generally involve a small number of investigators and a large problem area, e.g., learning theory, group processes, decision processes. Equally important contributions may be made by formal sponsorship of meetings of all active investigators, whether 3 or 50, in relatively narrow problem areas, e.g., discrimination learning in monkeys, concept learning in children, "fixation" behavior, perception of motion, reaction time.

3. A fundamental need, in any science, is an *efficient method for storage and selective retrieval* of the results of scientific research, whether such be in the form of theoretical ideas and integrations of knowledge or in the form of reports of observations

and the conditions under which the observations were obtained. During the history of scientific psychology it has been generally assumed that the need for storage of information is satisfied by printed archives in the form of journals, monographs, or books and that the technique of retrieval is the responsibility, and skill, of the individual scientist with such aid as can be given by abstract journals, bibliographies, and bibliographies of bibliographies. Psychology should be alert to the possibility of developments in information storage and retrieval which make more efficient use of printed archives, as well as those which might replace or at least supplement printed archives.

4. In psychology the traditional emphasis continues to be more on the storage function served by journals and books than upon the *retrieval function* served by abstract journals, encyclopedic compendia of archival materials, and integrated (even inventive) summaries of the literature in special areas. However, the efficiency of retrieval should be an important consideration in determining what and how material gets into the archives. In spite of efforts to solve the problem of retrieval through publication of abstracts and improvements of indexing and cataloging techniques, it is often said that there has been a decline in "scholarship" among our scientists. It may, in fact, sometimes be true that it is more economical to produce new data in the laboratory than to search for studies in the literature that would provide the needed data. Certainly, the psychologist today cannot read all of the principal journals and books in psychology, and it is an uncommon specialist who reads all of the literature in his area of specialization.

In view of this vast and ever increasing quantity of literature, it may be that archival media other than printed journals will be invented and exploited for psychology as well as for other sciences. Nevertheless, at least temporary solution to this problem of storage of information in a form which does not overload the retrieval mechanisms available to us should be encouraged. Contemporary journals vary considerably in their selection for quality and definitiveness of the research, their insistence upon brevity and clarity of expression, and their insistence upon the consolidation of extensive research efforts into single reports. Rigorous standards should be adopted for acceptance of communications into the psychologist's archives, standards that emphasize not only the reliability of the find-

ings reported but also the efficient "packaging" of information for the user. Such standards should alleviate the future retrieval problem by reducing the bulk of the archival storage, increasing the efficiency of retrieval of information on related problems, and reducing the number of bibliographic units in the system.

Integrally related to all of this, there must be a direct attack on the coding of information for retrieval purposes. The retrieval of information in archival storage can no longer depend upon the scanning capabilities of the individual scientist and must be aided by efficient systems for classifying, or coding, the knowledge of psychology and for fitting each archival unit into the schema in such a way that it can be found by the scientist who requires it. Abstracting systems, annotated bibliographic systems, and other indexing systems are, in the opinion of BSA, not at present adequate to this need, in large part because there is no adequate, standard encoding or indexing system for our knowledge. This inadequacy of the present indexing system is symptomatic of the youth of psychology as a quantitative science; we lack an adequate taxonomy of behavior and behavior-related variables. Even so, unless psychologists can devise an agreed upon classification of knowledge in their science, it is likely that the present printed archival system will not work much longer and psychology will not be able to exploit the advantages of new techniques for the automatic storage and retrieval of information, such as are currently being suggested. In the opinion of BSA, psychologists should attend immediately to this problem of encyclopedic organization of knowledge and codification of methods, measures, and results. These steps will have other desirable consequences, such as the reduction of conflicting reports resulting purely from methodological artifacts, and the elimination of redundancy in reporting methods and procedures.

Even though psychology had an adequate coding system, thus permitting efficient retrieval, it would still be beyond the capabilities of all individual scientists to perform the necessary retrieval and integration across broad bands of our science. Therefore, the roles and functions of the scholarly encyclopedist and of the scholarly and creative integrator of our knowledge need reemphasis, and perhaps greater encouragement and rewards. From the viewpoint of BSA, psychology has, over the past 20 years, given more and more emphasis to new

fact and theory and less and less to the constructive integrative survey of what is known. This has been reflected in the scarcity of suitable material for the *Psychological Bulletin* and the relative infrequency of monographs or books—other than textbooks—on the status of limited problem areas. Perhaps such "handbooks" and scholarly analyses need to be subsidized in an orderly fashion, if this necessary communication need is to be satisfied.

In summary, BSA considers the problem of efficient and effective communication of scientific information to be perhaps the most critical problem faced by scientific psychology today. As perceived by BSA, it encompasses all the media of communication. The techniques of scientific communication now employed by psychologists have evolved from past experiences, conditions, and needs, without much self-conscious analysis or deliberate planning. We are now facing a crisis with repercussions throughout our whole scientific enterprise. Some symptoms of the crisis are: (a) an overloading of the various channels of publication; (b) a stereotyping of publications so as to fit a standardized mold of reporting; (c) an excessive amount of reporting in archival journals of fragmentary findings, of "first steps" of research which are often never followed up, and too little integrative reporting of "firm" conclusions; (d) an overloading of the programs of regional and national conventions with "bit-by-bit" reports of research; and (e) a failure to use the conventions as an occasion for the exchange of important ideas and information or for the stimulation of quality and originality in psychological research.

Any effort to deal constructively with the present crisis should be guided by an understanding of the factors which have brought it about. The following factors may be suggested, though systematic effort should be devoted to analyzing them: a rapid growth in the number of psychologists, a great increase in the scope of psychological research, a reluctance to apply qualitative rather than quantitative criteria in evaluating scholarship and research productivity, an increase in research financed by agencies demanding project reports, the practice of paying travel costs to conventions only for those who read papers, a reluctance to impose qualitative distinctions in the selection of papers for publication or for conventions, a lack of adequate values inculcated by graduate training concerning quality of publications, and a failure, so far, to achieve an

accepted taxonomy of behavior or of environmental contexts in which behavior occurs or with which it interacts.

BSA believes the situation to be critical because there are as yet few signs of inventive solutions to the basic problems, either in the organization of annual meetings or in the publication policies of our journals. But the crisis cannot be met effectively by a single remedy. It requires a concerted attack by many agencies within psychology. Editorial policies, convention policies, graduate training, policies of research sponsors, criteria for professional advancement all need to be examined separately and together in order to discover ways in which to deal effectively with the problem.

The Board of Scientific Affairs is prepared to advise and assist in this over-all program if it be-

comes clear that psychologists will give time and effort toward the goal of better communication.

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## SOME CHARACTERISTICS OF RESEARCH IN APPLIED SETTINGS<sup>1</sup>

MYMON GOLDSTEIN

*Indiana University*

THE recent growth of applied psychology has provided many opportunities for the conduct of research in applied settings. In some instances, support has been obtained for fairly systematic, basic research. Opinions favoring an increase in applied-sponsored basic research are being expressed (e.g., Melton, 1952; Pickering & Kornhauser, 1957).

This trend has developed in spite of general awareness that research workers and applied sponsors can be very strange bedfellows indeed. Whatever the degree of incompatibility between these two groups, though, there is a growing persuasion that complementary needs make it worthwhile for them to put up with each other. The sources of this persuasion will serve as a point of departure for this paper. The remainder of the paper will describe some ways in which applied settings influence the research they support.

The remarks that follow are relevant in some degree to any of the usual applied fields (see Burt, 1957), but address themselves primarily to industrial, military, and applied educational psychology. Insofar as possible, they attempt to provide an objective description of contemporary conditions, but colleagues in applied work assure me that some idiosyncratic views have crept in. With this note of caution, the remarks are submitted for the information of anyone who would like to participate in applied research, or improve the link between applied and academic research.

### ORIGINS OF APPLIED-SPONSORED RESEARCH

Applied agencies do not usually start out intending to subsidize the evolution of systematic psychology. They want advice or professional services. They need to select, train, or evaluate men; or design materials, jobs, or environments to suit men. If the needed information is known to psy-

chologists, and thereby obtainable in consultations, and if specially required materials, such as tests, are available commercially, there is little likelihood of applied sponsorship for development, let alone research.

*"Show me" empiricism.* Even in the absence of well established knowledge or empirically justified materials, few applied agencies make haste to sponsor research. They are more likely to ask a psychologist to extrapolate from the known to the unknown and venture a "best guess." Such a guess may be accepted in lieu of evidence and never subjected to empirical test. More usually, some sort of simple empirical test must be attempted, because the guessing record of applied psychologists is not a distinguished one. In this manner, a kind of prescientific empiricism manages to find its way into applied settings: the experimental variable is inclusion vs. omission of the psychologist's ministrations; data are collected with respect to some aspect of the applied agency's welfare; and a qualitative or statistical comparison is performed.

For example, suppose an applied agency is dissatisfied with an existent training course and calls in a psychologist to replace it with the best possible course he can design. The psychologist may introduce numerous departures from existent procedures, on the basis of whim, professional knowledge, or both. In the end, his course will probably be evaluated as a package: does it turn out better-trained people than the original one or not?

The indicated type of empiricism is no boon to systematic psychology and is not especially intended to be one. Its tested assertions generally concern the suitability of hardly analyzed, complex, highly specialized procedures for equally unanalyzed, complex, special purposes. Rarely can the results of a study be related to a clearly statable, potentially generalizable proposition. The sole purpose of empiricism here is to demonstrate whether a desired effect has been obtained or not; it is a sort of rejoinder to the challenge: "I'm from Missouri; show me." "Show me" empiricism can lead to sci-

<sup>1</sup>The content of this paper has benefited from many conversations and communications with D. S. Ellis, R. M. Gagné, and D. G. Ellson. In final form, however, it does not faithfully represent the views of these people.

ence, in the sense of interrelated research and analytic, formally organized knowledge, but need not do so. In applied settings, it is common to find "show me" empiricism in the absence of anything resembling an organized approach that might be called science. This circumstance is reflected in some variants of the "methods" experiment, as illustrated above and described elsewhere (Lindquist, 1940, pp. 78-84), in the classical conceptions of validity and criterion (Cureton, 1951), and in many of the other customs and viewpoints of the applied psychology movement. The reader may find it diverting to skim through any of the standard texts on industrial or personnel psychology for examples of "show me" empiricism.

To be sure, this type of empiricism is well-suited to a narrow view of the applied sponsor's interests. He wants to know if he has gotten results and little cares how they came about. There is no trouble in persuading him to back such empirical efforts, and he often instigates them. Whatever their immediate benefits, though, they ultimately place the applied psychologist in a very difficult position. They provide a passing or failing grade for a large-scale undertaking, with hardly a clue as to how things might have been done better in cases of failure. Indeed, failures occur often enough to be a matter of professional concern and personal jeopardy. How is the applied psychologist to avoid failure or convert an original failure into a final success? Perhaps by turning to the literature. Unfortunately, contemporary knowledge has not the scope which would make it possible to solve most problems by poring over professional journals. Although some applied areas prosper on information imported from systematic psychology (e.g., teaching machines, commercial uses of psychophysics), most daily applied problems go untouched in the experimental and theoretical literature. Relevant applied literature can be found more often, but usually differs in many particulars from the concerns at hand and fails to generalize gracefully. It is common for all sources to leave the questions of an applied psychologist unanswered. Even so, he is supposed to produce something usable, whether the literature is prepared to back him up or not. He finds himself guessing and failing more often than he would like, and more often than would be necessary if some reasonably analytic experiments could be run to his specifications.

*Minimum research.* In the manner described

above, there is established a need for something resembling scientific research under applied sponsorship. The service-rendering, advice-giving, applied psychologist usually appreciates this need more adequately than his employer and must engage in salesmanship. Support can be obtained in many, but by no means all, settings for quick, inexpensive research, involving a minimum of gamble, and specially slanted towards the immediate purposes of the applied agency. Such studies constitute a kind of low-powered enterprise, much like the efforts of an average research-minded student or a marginal professional researcher. The minimal investment of talent and effort, if successful, usually brings back a comparably small amount of benefit. After many such studies, the applied psychologist and his sponsor are left better off than if there had been no recourse to research at all, but not well enough off to be comfortable.

*Steps toward basic research.* A final avenue for improvement remains open: expansion of research outlook, to include high-powered attacks on more basic problems. Unfortunately, such a step involves many difficulties. Broadly conceived research is expensive, time-consuming, and runs an uncertain course to an unpredictable finish. Experienced critics of research proposals can recognize all sorts of conditions that are probably necessary for a breakthrough in knowledge, but no one can tell what conditions are sufficient until the breakthrough has occurred or is in progress. Still another problem is staffing. The course of research is terribly sensitive to the qualities of the individual research worker. Able researchers are rare enough in the profession as a whole, but more so in applied circles. An applied agency must be unusually well-established and well-funded, and must be persuaded that it needs the potential results very badly, to be willing to endure the difficulties of involvement in broadly-conceived research. Even then, the agency is likely to expend considerable effort on strategies that are intended to get the research done without a genuine assumption of sponsorship.

One familiar strategy is to woo the attentions, but not the persons, of research workers employed elsewhere (e.g., academic institutions). The applied agency and its service-rendering psychologists set themselves up as formulators of problems for other people to solve. After public announcement, the problems are expected to achieve eventual solu-

tion, at little or no cost to the agency, as a result of general professional interest. This type of strategy may work at times, but is usually unrealistic. Only highly-qualified research men can look at applied psychology's motley assortment of expedencies, intuitionisms, discomforts, and confusions with any hope of teasing out a major problem that is really ready for research. By the time a man is found to state problems well, he is also one of the few who both care to and know how to solve them. As a matter of fact, problem formulation and solution interact with each other; reformulations are often a main outcome of attempted solutions. It is quite bizarre to seek division of labor between formulators and solvers of problems, especially at this early stage in the development of psychology.

Various other strategies are used by applied agencies in attempts to stimulate, but not support, needed research. A few are quite clever and do succeed in getting desired research going under somebody else's sponsorship. In the long run, though, the course of research stimulated elsewhere tends to diverge from the needs of the stimulating agency, unless a fairly close degree of association is maintained. Like it or not, applied agencies usually find they have to live with and support research workers, or give up trying to influence the course that research takes. Some agencies are in no position to give up trying, and hire research workers, or write contracts with them.

*The climate of basic research.* The circumstances that give research workers entry into applied settings also set the stage for a prevailing armed-truce relationship. Applied agencies have no reason to sponsor research unless they can somehow direct it towards their needs; research workers have no desire to allow the meddling of amateurs to ruin their labors. When a venture involves study of conditions that do not quite duplicate the existing applied scene, it is possible, but not certain, that an increase in ultimate scope will compensate for the decrease in immediate relevance. As the sponsor sees it, departures from immediacy threaten to carry his program into areas of research he does not care to support. As the research worker sees it, departures from immediacy are an essential ingredient of a first-class performance. Since both parties are justified in their viewpoints, they usually function somewhat at cross-purposes.

The applied sponsor endures these discomforts

when confronted with serious troubles that might yield to research. But what of the research worker? Why should he expose himself to the incompatibilities of an applied environment? There are, of course, matters like salary level or absence of choicer openings that require no elaboration here. A more interesting attraction is the possibility that an applied setting will stimulate generation of new research ideas. Research workers do not get their ideas from staring into space. They are stimulated by some kind of exposure to a subject matter area. This exposure may come by way of reading journals, with an eye toward variations of procedure, problem formulation, or organization of available knowledge; or it may emerge from everyday observations and introspections, that provide raw material for a recasting into objective research format; or it may take other forms. Some research workers have found the problems and difficulties of applied psychology especially stimulating, and willingly endure incompatibilities for the sake of heightened intellectual fertility. In case this choice seems bizarre, the reader would do well to note that the history of science includes many instances in which fundamental advances resulted from imaginative work in applied areas. A striking example was the development of thermodynamics out of Carnot's careful idealization of his experiences with steam engines.

At the present time, there are probably only a few good research workers in applied settings, but their number seems to be increasing, and along with it the amount of lay and professional interest in their activities. Even if they should remain a relatively small group, however, heightened public interest is warranted, because they are in a position to enrich psychology with subject matter that might otherwise not receive treatment for many years to come, if at all. Whether or not such enrichment is actually realized depends, in part, upon the extent to which the conditions affecting applied-sponsored research are known and understood. The remainder of this paper will attempt to describe some of these conditions.

#### SITUATIONAL NUISANCES

Applied-sponsored research originates and runs its course against a backdrop of nuisances that threaten to drain its resources and cheapen its quality. It must be designed to withstand these nuisances just as it must be designed to afford a

reasonable prospect of new knowledge. These nuisances are so much a part of the applied scene that they merit detailed description.

*Cost per yield.* Applied agencies are accustomed to evaluating their enterprises on the basis of cost per yield, or some similar ratio. In dealing with research, they are troubled to find that the cost is easy enough to compute, but not the yield. As cost increases, so does the pressure for an apparently justifying economic yield, or usable product of some other sort. This pressure often comes at entirely the wrong time and may disrupt research efforts that have been developing nicely.

The cost per yield ratio has another most serious consequence. There are usually cheaper, less well-controlled methods than those likely to be adopted by a first-class research worker. If a little bit of distorted, but usable, information can be obtained cheaply, it may seem more desirable to an applied sponsor than sounder, more thorough information obtainable at greater expense. Penny-wise, pound-foolish decisions of this type are made frequently, over the objections of research workers.

*Time pressure.* The progress of a scientific discipline is properly viewed in terms of years, or even decades; the progress of an applied-sponsored research worker may be viewed in terms of weeks or months. This anomaly is due partly to the habit of tidy day-to-day activity scheduling that applied agencies generally develop in response to the needs of their nonresearch undertakings. Research workers often succumb to gentle pressures toward conformity and produce tidy schedules of their own. On many occasions, the course of research takes an unexpected twist, and the schedule cannot be met without reducing the quality of the venture. In such cases, the research worker may have to make an uncomfortable choice between his private awareness of the demands of his work and his public reputation as a man who fulfills obligations.

A second source of time pressure is limited-duration sponsor interest. Applied agencies change with the passage of time. They develop new jobs and discard old ones, replace antiquated equipment, market new goods, etc. Time-consuming research is often accompanied by obsolescing sponsor need. A misguided common solution to this problem is hasty, minimum scope research. A more desirable solution might be effected if research workers limited themselves to their sponsors' more durable needs, so that research could be conducted properly.

*Overt signs of activity.* Anyone responsible for a research enterprise must evaluate the personal merits of its participants and the likelihood of eventual achievement. When a research worker closets himself for extended periods, there may be doubts about the nature of his concealed activities. These doubts can be dispelled only if the research worker emerges periodically with a tangible product or a program of visible experimentation.

Some such viewpoint is likely to be found anywhere that research is supported. Unfortunately, it is so badly distorted in many applied settings that only overt signs of activity are recognized as an essential ingredient of research. In such settings, meditation and theory must be bootlegged into an enterprise when there is temporary relaxation of supervisory vigilance. It is common for empirical ventures of two and three years' duration to be embarked upon with little rationale.

*Approximation and error.* In response to the pressures described above, applied psychology has developed a tradition of hasty approximation, and laxity with respect to error. This special tradition within psychology appeals to many applied sponsors and often assumes the status of a norm from which departures can be effected only after painstaking justification. It is routine for a nonrigorous applied psychologist to ask himself: "How much sloppiness can I permit and still have something?" Indeed, this type of question underlies some of the concern over "reliability" of measurement. Passable reliabilities are accepted as evidence enough that the sloppiness permitted was tolerable.

It must be granted that scientific discoveries can be made, on occasion, in spite of abundant experimental error. It is also true that error is so familiar in all experimental disciplines as to have warranted the development of various formal procedures to treat it analytically. Nonetheless, error must properly be viewed as a matter for discomfort and admitted only when there is no alternative. Psychologists working in the applied tradition repeatedly miss opportunities for progress, because they sample where they might have controlled or accept imperfect connections where avoidable error has prevented them from investigating the possibility of full determinacy.

*Correlation as a tradition.* Various well-known techniques received implicit treatment in the preceding discussion of approximation and error. Among them was correlation, which is so much the

darling of the applied tradition that it must be given explicit consideration as well.

The correlational approach is a matter of considerable controversy in scientific circles. There is no denying that correlation expresses loose connections between variables somewhat elegantly and is a profitable technique when no better than a loose connection can be found. On the other hand, this same elegance of expression lends respectability to the search for loose connections even in cases where something firmer is possible. Hogben (1957), for example, has argued that the classical work on heredity by Galton and Pearson inhibited the establishment of the Mendelian viewpoint. It is not difficult to imagine that the social acceptability of the loose connection in applied fields also inhibits progress. Indeed, several authors have recently suggested that the correlation-steeped testing movement may be at a stalemate (e.g., Travers, 1956). Yet, time and again, the existence of an applied correlational tradition places experimental care and theory on the defensive. Matters are not helped any by a parade of minute, but triumphant, coefficients that have netted millions of dollars or changed the face of an army.

*Prefabricated variables.* Applied-sponsored research rarely begins in virgin territory. There is usually some prior history of dabbling by amateurs or semiskilled professionals, and a heritage of variables which are psychological in a way, but inevitably fail to show that self-imposed limitation to hard-core essentials that can make or break a science. Such variables are handed over ready-made to the incoming research worker, who is somehow expected to give them scope that could not be achieved by their inventors.

Reformulation is difficult to accomplish. The research worker himself may be subject to confusions that could be avoided if he started from scratch. Public resistance to change is also likely, because ill-conceived variables that gain sway commonly express a sponsor's purposes very well, even if they fail to treat the phenomena adequately. Applied "criteria" are often like that.

*Excessive reassurance of sponsors.* Fretful sponsors have been known to require excessive reassurance. In such cases, there is need for documents of justification, verbal pronouncements, and pot-boiler experiments in endless array. Such requirements are always a drain. At best, they are fulfilled by specialists without major research talent,

who are awarded too large a share of the "research" budget, and are a minor nuisance to the primary research staff. At worst, it becomes necessary for accomplished research workers to devote much of their own time and effort to the reassurance of the sponsor.

#### THE COURSE OF RESEARCH

In spite of the many obstacles detailed in the preceding section, applied-sponsored research can be very rewarding, if adapted simultaneously to the state of systematic psychology and the special requirements of applied settings. Successfully adapted research has much in common with good research anywhere, but often assumes a special quality that makes it interestingly different.

*Choice of area.* One of the most distinctive features of applied-sponsored research is the great challenge associated with getting started. Even if the problems of a sponsor provide useful raw material for experimentation, they are not likely to mean much to a systematic psychologist when first encountered. They are usually stated in unfamiliar or imprecise language, and experimental handles are almost always absent. It can be a mark of supreme professional acumen to recognize the experimental potential of applied problems, let alone actualize it. A pattern of success or failure is often established before any specific experimental designs are drawn up.

A case in point is afforded by contemporary research on human factors in equipment maintenance. Primordial statements of research objective in this context generally involve behaviors called "circuit tracing," "detection of malfunctions," "repair," "adjustment," etc. These descriptive terms hardly merit inclusion in the *Handbook of Experimental Psychology*. They can be improved slightly by profuse behavioral observation after the fashion of the check-list method (Miller, 1953) and can be given some thin psychological content if the loose relevance of certain established topics, such as problem solving or rote verbal learning, is noted. In this way, for example, "detection of malfunctions" may be transformed into "sequentially dependent go-no-go problem solving," which has some research possibilities. However, only the uninitiated dare to psychologize glibly. Transformations of the type indicated are not all gain. They involve a process of selection from the original potential of the raw material. "Detection of malfunctions" can lead to

research on "recall properties of linked physical science information" as plausibly as to research on "sequentially dependent go-no-go problem solving." There is considerable doubt as to just where and how a psychologist should stake out his claim. Such doubt provides an excellent opportunity for choice of area to be based partly on a best guess of research potential. Whether or not capital can be made of this opportunity depends upon the mettle of the individual research worker and the amount of effort he invests before starting to plan specific experiments.

*Research design.* When particularized design finally gets underway, much that takes place transcends the special properties of applied settings and can be found described in various standard sources (e.g., Fisher, 1935, 1951; Underwood, 1957). A distinguishing feature remains, though, in that exceptionally many of the research opportunities occur in areas that are new to systematic psychology and involve the extra difficulties connected with building from the ground up. Contrast, for example, the position of the traditional experimenter, who can decide if he should sandpaper his maze by drawing from the vast literature on sensory cues in maze learning, with the position of the applied experimenter, who must approach new gunnery systems without directly relevant literature and thus without fully knowing the consequences of deciding for or against simulation of aircraft noise. The applied experimenter develops his apparatus and procedure more hesitantly, and with more recourse to time-consuming "pilot" experiments, than his counterpart in traditional areas.

Besides the extra input of routine design activity considered so far, the novelty of applied areas also requires special adeptness with the intellectual tools of psychology, because constructs have to be invented or redefined, and theoretical structures overhauled, in the course of experimental design. For example, work with concept formation in aerial photo-interpretation does not permit the easy, often-exercised option of imitating Hull's classic approach (1920), which defines "concept" on the basis of a stable feature common to a class of objects. Gagné (1954), Chalmers (in press), and others have indicated that such "concepts" as may apply to aerial photographs of industries relate stimuli to stimulus classes in a many-many correspondence, and stimulus classes to each other and to industrial process information in sometimes hierarchical, sometimes

parallel many-many correspondences. Any intended concept-formation study would have to begin with an analysis of the notion, "concept," and an expansion or discard of this notion to suit newly broadened horizons.

Another very challenging feature of applied area novelty is the need to generate experimental issues and research leads out of material that has had no previous professional analysis or manipulation. Since established theories apply only in rare cases of good fortune, and existing empirical paradigms like CS-CR-reinforcement also help but little, any formulations that might guide experimenters to profitable issues usually must be invented on the spot, as part of the local design effort.

Most research workers arrive in applied settings startlingly unprepared to deal with the novelty all around. They seem accustomed to falling over backwards into well-worked areas, borrowing more than they realize from tradition, and succeeding by dint of minor variation on established themes. Indeed, many of them need to be assured and reassured that research can be basic even if it lacks obvious resemblance to patterns remembered from graduate school (e.g., Melton, 1952). Only a gifted few arrive equipped to cope with novelty, and not too many more acquire such ability in the course of later experience.

*Standards of accomplishment.* Two sets of standards are encountered in applied settings, and both affect the nature of research undertakings. One set derives from the orientation of the sponsor and centers about findings that can be used outside the laboratory. The other set derives from a professional research outlook, emphasizes technical craftsmanship, and centers about the development of interrelated scientific information for its own sake. The two sets of standards certainly need not conflict, since craftsmanly work leading to systematized knowledge is the surest route to eventual application. Conflict does arise in practice, though, because the two different sets of standards express the partisanship of two different types of personal background. The man of affairs, who finds many scientific concerns picayune, and the man of science, who finds most applied purposes intrusive, must educate each other.

Scientists, of course, have good reason for the concerns that seem picayune to an outsider. New knowledge results from painstaking analysis of the "obvious," as well as the "mysterious"; is pursued

more efficiently with the aid of "unexciting" scientific "bookkeeping" developments, such as matrix methods; and ultimately achieves authority on a foundation of intensive refinement in experimental control and instrumentation, that may tax a layman's patience. The esteem granted by the scientific community to pursuits and accomplishments such as these is generally withheld by sponsors until they are properly educated. As usual, though, education turns out to be a two-way process. The research worker emerges less inclined to exaggerate the worth of technical niceties, by the time he has completed their defense and met sponsor objections. This is an important professional asset, particularly in psychology, where the recent enthusiastic adoption of various scientific techniques has swept some people into uncritical adoration of their new methodology. There are, for example, smooth curve cultists, who vastly overestimate the worth of any pedestrian research that yields orderly data progressions. Aberrant value systems of this type are given especially cool receptions in applied settings, and soon decline.

The sponsor-inspired goal of applicability is, of course, a dominant value and must be pursued for reasons of survival, if not professional interest. Granting the necessity of this pursuit, we may go on to note that it handicaps research workers far more than laymen at first realize. Research is done best when there is freedom to drift opportunistically toward problems that show signs of yielding. Originally stated goals should be no more than tentative sources of guidance. It is profitable to broaden or narrow problems, free associate to them, shift emphases, etc., and finally work on whatever seems promising, whether there is much connection with original purposes or not. Unfortunately, this model represents more freedom than applied sponsors can possibly tolerate, since they have no reason to support research that drifts away from their needs. By way of compromise, sponsors must be taught to formulate needs as permissively as possible and to settle for findings that are somewhat out of phase with original intentions, though relevant. Such

compromise leaves most research workers with less than optimal freedom, but is usually unavoidable in applied settings. On the other hand, it yields occasional professional benefit. Undisciplined drift too readily follows paths of least resistance away from new, but difficult, regions of opportunity into more hackneyed tangent areas. The enforcement of drift-limiting boundaries helps some research workers keep their efforts directed toward psychology's unrealized potential and stimulates them to learn how to take advantage of the opportunities afforded by novelty.

#### REFERENCES

- BURTT, H. E. *Applied psychology*. (2nd ed.) Englewood Cliffs, N. J.: Prentice-Hall, 1957.
- CHALMERS, E. L. Human factors in photo interpretation. In R. N. Colwell (Ed.), *Manual of photographic interpretation*. In press.
- CURETON, E. E. Validity. In E. F. Lindquist (Ed.), *Educational measurement*. Washington, D. C.: Amer. Council on Educ., 1951. Pp. 621-694.
- FISHER, R. A. *The design of experiments*. Edinburgh: Oliver & Boyd, 1935, 1951.
- GAGNÉ, R. M. An analysis of two problem-solving activities. *USAF Personnel Train. Res. Cent. res. Bull.*, 1954, No. 54-77.
- HOGBEN, L. *Statistical theory*. London: George Allen & Unwin, 1957.
- HULL, C. L. Quantitative aspects of the evolution of concepts: An experimental study. *Psychol. Monogr.*, 1920, 28, No. 1 (Whole No. 123).
- LINDQUIST, E. F. *Statistical analysis in educational research*. New York: Houghton, 1940.
- MELTON, A. W. Military requirements for the systematic study of psychological variables. In J. C. Flanagan (Ed.), *Psychology in the world emergency*. Pittsburgh: Univer. Pittsburgh Press, 1952. Pp. 117-136.
- MILLER, R. B. Anticipating tomorrow's maintenance job. *USAF Hum. Resour. Res. Cent. res. Rev.*, 1953, No. 53-1.
- PICKERING, E. J., & KORNHAUSER, A. Opinions about industrial psychology by different groups of psychologists. *Amer. Psychologist*, 1957, 12, 204-211.
- TRAVERS, R. M. W. Personnel selection and classification research as a laboratory science. *Educ. psychol. Measmt.*, 1956, 16, 195-208.
- UNDERWOOD, B. J. *Psychological research*. New York: Appleton-Century-Crofts, 1957.

(A previous version of the proposed "Standards of Ethical Behavior for Psychologists" was published, in the June 1958 issue of the *American Psychologist*, to invite comment from psychologists. The comments have been considered and incorporated in the revision published here. This code has now been approved by the Board of Directors of the American Psychological Association to be in effect for a three-year trial period.)

## ETHICAL STANDARDS OF PSYCHOLOGISTS

### *Preamble*

The psychologist<sup>1</sup> is committed to a belief in the dignity and worth of the individual human being. While demanding for himself the rights of freedom of inquiry and freedom of communication, he accepts the responsibilities that these freedoms imply. He maintains integrity with respect to the facts of his science and in his relationships with other psychologists and with the public. He does not use his psychological knowledge or insights to secure personal advantage, nor does he knowingly permit his services to be used by others for purposes inconsistent with his own ethical standards.

**Principle 1. General.** The psychologist, committed to increasing man's understanding of man, places high value on objectivity and integrity, and maintains the highest standards in the services he offers.

- a. As a scientist, the psychologist believes that society will be best served when he investigates where his judgment indicates investigation is needed; he plans his research in such a way as to minimize the possibility that his findings will be misleading; and he publishes full reports of his work never discarding without explanation data which may modify the interpretation of results.
- b. As a teacher, the psychologist recognizes his primary obligation to help others acquire knowledge and skill, and to maintain high standards of scholarship.
- c. As a practitioner, the psychologist knows that he bears a heavy social responsibility because his work may touch intimately the lives of others.

**Principle 2. Competence.** The maintenance of high standards of professional competence is a responsibility shared by all psychologists, in the interest of the public and of the profession as a whole.

- a. Psychologists discourage the practice of psychology by unqualified persons and assist the public in identifying psychologists competent to give dependable professional service. When a psychologist or a person identifying himself as a psychologist violates ethical standards, psychologists who know firsthand of such

activities attempt to rectify the situation. When such a situation cannot be dealt with informally, it is called to the attention of the appropriate local, state, or national committee on professional ethics, standards, and practices.

- b. The psychologist recognizes the boundaries of his competence and the limitations of his techniques and does not offer services or use techniques that fail to meet professional standards established by recognized specialists in particular fields. The psychologist who engages in practice assists his client in obtaining professional help for all important aspects of his problem that fall outside the boundaries of his own competence. This principle requires that provision be made for the diagnosis and treatment of relevant medical problems.
- c. The psychologist recognizes that his effectiveness in clinical work depends in good part upon his ability to maintain sound interpersonal relationships, that temporary or more enduring aberrations in his own personality may interfere with this ability or distort his appraisals of others. Therefore he refrains from undertaking any activity in which his personal limitations are likely to result in inferior professional services or harm to a client; or, if he is already engaged in such an activity when he becomes aware of his limitations, he seeks competent professional consultation.

### **Principle 3. Moral and Legal Standards.**

The psychologist in the practice of his profession shows sensible regard for the social codes and moral expectations of the community in which he works, recognizing that violations of accepted moral and legal standards on his part may involve his clients, students, or colleagues in damaging personal conflicts, and impugn his own name and the reputation of his profession.

<sup>1</sup>A student of psychology who assumes the role of psychologist in relation to others, for didactic purposes or otherwise, shall be considered a psychologist for the purpose of this code of ethics.

**Principle 4. Misrepresentation.** The psychologist avoids misrepresentation of his own professional qualifications, affiliations, and purposes, and those of the institutions and organizations with which he is associated.

- a. A psychologist does not claim either directly or by implication professional qualifications that exceed his actual qualifications, nor does he misrepresent his affiliation with any institution, organization, or individual, nor lead others to assume he has affiliations that he does not have. The psychologist is responsible for correcting others who misrepresent his professional qualifications or affiliations.
- b. The psychologist does not misrepresent an institution or organization with which he is affiliated by ascribing to it characteristics that it does not have.
- c. A psychologist does not use his affiliation with the American Psychological Association for purposes that are not consonant with the stated purposes of this Association.
- d. A psychologist does not permit his name to be used in connection with any program of psychological services in such a way as to misrepresent the nature of his affiliation, or the degree of his responsibility for those services.

**Principle 5. Public Statements.** Modesty, scientific caution, and due regard for the limits of present knowledge characterize all statements of psychologists who supply information to the public, either directly or indirectly.

- a. Psychologists who interpret the science of psychology or the services of psychologists to clients or to the general public have an obligation to report fairly and accurately. Exaggeration, sensationalism, superficiality, and other kinds of misrepresentation are avoided.
- b. When information about psychological procedures and techniques is given, care is taken to indicate that they should be used only by persons adequately trained in their use.

**Principle 6. Confidentiality.** Safeguarding information about an individual that has been obtained by the psychologist in the course of his practice or investigation is a primary obligation of the psychologist. Such information is not communicated to others unless certain important conditions are met.

- a. Information received in confidence is revealed only after most careful deliberation and when there is clear and imminent danger to an individual or to society, and then only to appropriate professional workers or public authorities.
- b. Information obtained in clinical or consulting relationships, or evaluative data concerning children, students, employees, and others are discussed only for

professional purposes and only with persons clearly concerned with the case.

- c. Clinical and other case materials are used in classroom teaching and writing only when the identity of the persons involved is completely disguised.
- d. The confidentiality of professional communications about individuals is maintained. Only when the originator and other persons involved give their express permission is a confidential professional communication shown to the individual concerned. The psychologist is responsible for informing the client of the limits of the confidentiality.
- e. Only after explicit permission has been granted is the identity of research subjects published. When data have been published without permission for identification, the psychologist assumes responsibility for adequately disguising their sources.

**Principle 7. Client Welfare.** The psychologist respects the integrity and protects the welfare of the person or group with whom he is working.

- a. The psychologist in industry, education, and other situations in which conflicts of interest may arise among varied parties, as between management and labor, defines for himself the nature and direction of his loyalties and responsibilities and keeps these parties informed of these commitments.
- b. When there is a conflict among professional workers, the psychologist is concerned primarily with the welfare of any client involved and only secondarily with the interest of his own professional group.
- c. The psychologist attempts to terminate a clinical or consulting relationship when it is reasonably clear to the psychologist that the client is not benefiting from it.
- d. The psychologist who asks that an individual reveal personal information in the course of interviewing, testing, or evaluation, or who allows such information to be divulged to him, does so only after making certain that the person is aware of the purpose of the interview, testing, or evaluation and of the ways in which the information may be used.
- e. In cases involving referral, the responsibility of the psychologist for the welfare of the client continues until this responsibility is assumed by the professional person to whom the client is referred or until the relationship with the psychologist making the referral has been terminated by mutual agreement. In situations where referral, consultation, or other changes in the conditions of the treatment are indicated and the client refuses referral, the psychologist carefully weighs the possible harm to the client, to himself, and to his profession that might ensue from continuing the relationship.
- f. The psychologist who requires the taking of psychological tests for didactic, classification, or research purposes protects the examinees by insuring that the tests and test results are used in a professional manner.
- g. When potentially disturbing subject matter is presented to students, it is discussed objectively, and ef-

forts are made to handle constructively any difficulties that arise.

- h. Care must be taken to insure an appropriate setting for clinical work to protect both client and psychologist from actual or imputed harm and the profession from censure.

**Principle 8. Client Relationship.** The psychologist informs his prospective client of the important aspects of the potential relationship that might affect the client's decision to enter the relationship.

- a. Aspects of the relationship which are likely to affect the client's decision include the recording of an interview, the use of interview material for training purposes, and observation of an interview by other persons.
- b. When the client is not competent to evaluate the situation, the person responsible for the client is informed of the circumstances which may influence the relationship.
- c. Psychologists do not normally enter into a clinical relationship with members of their own family, intimate friends, close associates, or others whose welfare might be jeopardized by such a dual relationship.

**Principle 9. Impersonal Services.** Psychological services for the purpose of individual diagnosis, treatment, or advice are provided only in the context of a professional relationship, and are not given by means of public lectures or demonstrations, newspapers or magazine articles, radio or television programs, mail, or similar media.

**Principle 10. Advertising.** A psychologist who advertises or makes public announcement of his services, describes them with accuracy and dignity, adhering to professional rather than to commercial standards.

- a. Cards announcing individual consulting practice are limited to a simple statement of the name, highest relevant degree, certification or diplomate status, address, telephone number, office hours, and a brief explanation of the types of services rendered. Announcements of agencies often list names of staff members with their qualifications. They conform in other particulars with the same standards as individual announcements, making certain that the true nature of the organization is apparent.
- b. Individual listings in telephone directories are limited to name, highest relevant degree, certification status, address, and telephone number. Agency listings are equally modest.
- c. A psychologist or agency announcing nonclinical professional services may use brochures to make these services known to the public. They may be sent to professional persons, to schools, and to business or-

ganizations, but to prospective individual clients only in response to inquiries. Display advertising of psychological services is not an acceptable practice.

**Principle 11. Interprofessional Relationship.** A psychologist does not normally offer professional services to a person who is receiving psychological assistance from another professional worker except by agreement with the other worker or after the termination of the client's relationship with the other professional worker.

**Principle 12. Remuneration.** Financial arrangements in professional practice are in accord with professional standards that safeguard the best interest of the client and the profession.

- a. In establishing rates for professional services, the psychologist considers carefully both the ability of the client to meet the financial burden and the charges made by other professional persons engaged in comparable work. He is willing to contribute a portion of his services to work for which he receives little or no financial return.
- b. No commission or rebate or any other form of remuneration is given or received for referral of clients for professional services.
- c. The psychologist in clinical or counseling practice does not use his relationships with clients to promote, for personal gain or the profit of an agency, commercial enterprises of any kind.
- d. A psychologist does not accept a private fee or any other form of remuneration for professional work with a person who is entitled to his services through an institution or agency. The policies of a particular agency may make explicit provision for private work with its clients by members of its staff, and in such instances the client would be fully apprised of all policies affecting him.

**Principle 13. Test Security.** Psychological tests and similar assessment devices, the value of which depends in part on the naiveté of the subject, are not reproduced or described in popular publications in ways that might invalidate the techniques. Access to such tests is limited to persons with professional interests who will safeguard their use.

- a. Sample items made up to resemble those of tests being discussed may be reproduced in popular articles and elsewhere, but scorable tests and actual test items are not reproduced except in professional publications.
- b. The psychologist is responsible for the control of psychological tests and other devices used for instruction when their value might be damaged by revealing to the general public their specific contents or underlying principles.

**Principle 14. Test Interpretation.** Test scores, like test materials, are released only to persons who are qualified to interpret and use them properly.

- a. "Self-appraisal" units in schools, social agencies, or industry are closely supervised by qualified psychologists or counselors with provisions for referring and counseling individuals when needed.
- b. Test results or other assessment data used for evaluation or classification are communicated to employers, relatives, or other appropriate persons in such a manner as to guard against misinterpretation or misuse. In the usual case, an interpretation of the test result rather than the score is communicated.
- c. When test results are communicated directly to parents and students, they are accompanied by adequate interpretive aids or advice.

**Principle 15. Test Publication.** Psychological tests are offered for commercial publication only to publishers who present and represent their tests in a professional way and distribute them only to qualified users.

- a. A test manual, technical handbook, or other suitable report on the test is provided which describes the method of constructing and standardizing the test, and summarizes the validation research.
- b. The populations for which the test has been developed and the purposes for which it is recommended are stated in the manual. Limitations upon the test's dependability, and aspects of its validity on which research is lacking or incomplete, are clearly stated. In particular, the manual draws attention to interpretations likely to be made which have not yet been substantiated by research.
- c. The catalog and manual indicate the training or professional qualifications required for sound interpretation of the test.
- d. The test manual and supporting documents take into account the principles enunciated in the *Technical Recommendations for Psychological Tests and Diagnostic Techniques*.
- e. Test advertisements are factual and descriptive rather than emotional and persuasive.

**Principle 16. Harmful Aftereffects.** Only when a problem is significant and can be investigated in no other way is the psychologist justified in giving misinformation to research subjects or exposing research subjects to physical or emotional stress.

- a. When the possibility of serious aftereffects exists, research is conducted only when the subjects or their responsible agents are fully informed of this possibility and volunteer nevertheless.
- b. The psychologist seriously considers the possible harmful aftereffects and removes them as soon as permitted by the design of the experiment.
- c. A psychologist using animals in research adheres to the provisions of the Rules Regarding Animals, drawn up by the Committee on Precautions in Animal Experimentation and adopted by the American Psychological Association.

**Principle 17. Publication Credit.** Credit is assigned to those who have contributed to a publication, in proportion to their contribution, and only to these.

- a. Major contributions of a professional character, made by several persons to a common project, are recognized by joint authorship. The experimenter or author who has borne the principal responsibility for a piece of research or writing is identified as the first listed.
- b. Minor contributions of a professional character, extensive clerical or similar nonprofessional assistance, and other minor contributions are acknowledged in footnotes or in an introductory statement.
- c. Acknowledgment through specific citations is made for unpublished as well as published material that has directly influenced the research or writing.
- d. A psychologist who compiles and edits for publication the contributions of others publishes the symposium or report under the title of the committee or symposium, with his own name appearing as chairman or editor among those of the other contributors or committee members.

**Principle 18. Organizational Material.** Materials prepared by a psychologist as a part of his regular work under specific direction of his organization are the property of that organization.

- a. Such materials are released for use or publication by a psychologist in accordance with policies of authorization, assignment of credit, and related matters which have been established by his organization.
- b. Other material resulting incidentally from activity supported by any agency, and for which the psychologist rightly assumes individual responsibility, is published with disclaimer for any responsibility on the part of the supporting agency.

## DOCTORAL TRAINING PROGRAMS IN CLINICAL PSYCHOLOGY AND IN COUNSELING PSYCHOLOGY

APPROVED BY THE APA EDUCATION AND TRAINING BOARD WITH THE  
CONCURRENCE OF THE BOARD OF DIRECTORS, MAY 1959

**O**N recommendation of the Committee on Evaluation, the Education and Training Board with the concurrence of the Board of Directors of the American Psychological Association has approved the doctoral training programs in clinical psychology and in counseling psychology that are conducted by the institutions listed below. In all institutions the approved programs are directed by the department of psychology unless otherwise indicated. Only programs leading to the PhD essentially in psychology are approved. Training programs that have not requested evaluation and programs that have been evaluated but not approved are not included in the lists.

Inclusion of the name of an institution in these lists indicates approval of doctoral training in clinical psychology and in counseling psychology only; inclusion

or noninclusion carries no implications for other graduate programs in psychology or for programs of graduate education in other disciplines.

Except for those programs indicated by an asterisk, the training programs at the institutions listed are undifferentiated by any rating. Schools marked with an asterisk have recently (at the dates indicated in parentheses) received interim approval of the programs thus designated. All newly approved programs receive asterisks and must have this designation for at least a few years of further trial before full approval is given.

The institutions listed below have been reported to the United States Public Health Service, to the Veterans Administration, and to The Surgeon General's Office, Department of the Army as conducting at the present time approved programs of doctoral training in areas indicated.

### DOCTORAL PROGRAMS IN CLINICAL PSYCHOLOGY

- |  |   |   |
|--|---|---|
| <p>*Adelphi College (1957)</p> <p>*Alabama, University of (1959)</p> <p>Boston University</p> <p>Buffalo, University of</p> <p>California, University of (Berkeley)</p> <p>California, University of (Los Angeles)</p> <p>Catholic University of America</p> <p>Chicago, University of</p> <p>Clark University</p> <p>Colorado, University of</p> <p>Connecticut, University of</p> <p>Duke University</p> <p>Florida, University of</p> <p>Florida State University</p> <p>*George Peabody College for Teachers, Division of Human Development and Guidance, with cooperation of Vanderbilt University (1959)</p> <p>Harvard University, Department of Social Relations</p> <p>*Houston, University of (1959)</p> | <p>Illinois, University of</p> <p>Indiana University</p> <p>Iowa, State University of</p> <p>Kansas, University of</p> <p>Kentucky, University of</p> <p>Louisiana State University</p> <p>*Loyola, University of (1959)</p> <p>*Massachusetts, University of (1958)</p> <p>Michigan State University</p> <p>Michigan, University of</p> <p>Minnesota, University of</p> <p>*Missouri, University of (1958)</p> <p>Nebraska, University of</p> <p>New York University Graduate School of Arts and Sciences</p> <p>North Carolina, University of</p> <p>Northwestern University</p> <p>Ohio State University</p> <p>*Oklahoma, University of (1957)</p> <p>*Oregon, University of (1958)</p> <p>Pennsylvania State University</p> <p>Pennsylvania, University of</p> | <p>Pittsburgh, University of</p> <p>Purdue University</p> <p>Rochester, University of</p> <p>Southern California, University of</p> <p>Stanford University</p> <p>*Syracuse University (1957)</p> <p>Teachers College, Columbia University, Department of Psychological Foundations and Services</p> <p>*Temple University (1958)</p> <p>Tennessee, University of</p> <p>Texas, University of</p> <p>Utah, University of</p> <p>Vanderbilt University, with cooperation of George Peabody College for Teachers</p> <p>*Washington State College (1956)</p> <p>Washington, University of (Seattle)</p> <p>Washington University (St. Louis)</p> <p>Western Reserve University</p> <p>Wisconsin, University of</p> <p>Yale University</p> |
|--|---|---|

## DOCTORAL PROGRAMS IN COUNSELING PSYCHOLOGY

Boston University  
 Buffalo, University of  
 California, University of (Los Angeles)  
 Catholic University of America  
 Colorado, University of  
 Duke University  
 Florida, University of  
 George Peabody College for Teachers, Division of Human Development and Guidance, with cooperation of Vanderbilt University  
 Illinois, University of  
 Iowa, State University of

Kansas, University of, Departments of Education and of Psychology  
 Maryland, University of  
 Michigan, University of  
 Minnesota, University of, Departments of Psychology and of Educational Psychology  
 Missouri, University of, Departments of Education and of Psychology  
 \*Nebraska, University of (1959)  
 New York University Graduate School of Arts and Sciences  
 Ohio State University  
 Oregon, University of

Pennsylvania State University  
 Pennsylvania, University of  
 Purdue University  
 \*Stanford University (1955)  
 Teachers College, Columbia University, Department of Psychological Foundations and Services  
 \*Temple University (1958)  
 Texas, University of, Departments of Education and of Psychology  
 \*Utah, University of, Departments of Psychology and of Educational Psychology (1957)

# UNDERGRADUATE GRADES AND THE MILLER ANALOGIES TEST AS PREDICTORS OF GRADUATE SUCCESS<sup>1</sup>

ARTHUR PLATZ, CHARLES McCLINTOCK,<sup>2</sup> AND DANIEL KATZ

*University of Michigan*

THE present study was designed to check the usefulness of undergraduate grades and the Miller Analogies Test (MAT) in predicting several measures of "success" in the graduate psychology program at the University of Michigan. Since both the MAT and undergraduate performance have been used to select the population studied, the results do not indicate the overall usefulness of these two predictors. They do furnish some indication, however, of the meaning of these predictors for a highly selected group of graduate students.

Studies relating high school grade point average with college grades generally find correlations between .40 and .60. General scholastic aptitude tests such as the ACE make almost as successful predictions (for a summary, see Tyler, 1956). Fewer studies have been conducted to determine the relationship of undergraduate college grades or scholastic aptitude test scores with graduate grades, and, in general, the results of these studies are less consistent than in prediction of undergraduate performance.

The value of the MAT, which is used by more than half of the universities offering a PhD in psychology (Moore, 1954) as a predictor of academic achievement, has recently been called into question because of its low correlations with grades and other measures of competence in a graduate psychology program (Hyman, 1957). One would not expect the MAT to demonstrate good discriminative efficiency if it had already been used as a selection device. In commenting on the frequent low correlations obtained between test scores used in selection and criterion measures, Fricke (1956) has pointed out that this may only be an indication of the success of screening. In effect, using a test as the basis for the selection of applicants should

tend to remove whatever the test is measuring as a variable affecting subsequent performance.

Previous studies relating MAT score with grades in graduate psychology programs have reported correlations ranging from .16 (not significant) (Hyman, 1957) to as high as .68 (Cureton, Cureton, & Bishop, 1949). Specific results are highly dependent upon sample characteristics (for instance, whether most of the graduate students attended the same university for undergraduate training, as in the Weber, Brink, & Gilliland study, 1942) and upon the heterogeneity of the sample in terms of both the predictor and the criterion measures.

Correlations between the MAT and ratings of professional or research competence tend to be low or not significant (Hyman, 1957; Watters & Patterson, 1953). A notable exception is the Kelly-Fiske study (1951), in which MAT scores correlated .47 with ratings of academic performance in the 1947 sample, although the correlation was only .16 in the 1948 sample. Here again, specific results are highly dependent upon characteristics of the sample and on the nature of the criterion.

## PROCEDURE

The present study was based on 124 students who entered the graduate program at the University of Michigan during the years 1951 through 1955. Excluded are foreign students and five students who left the program during the first year. Information available on each applicant at the time of entrance included the following measures:

1. Total undergraduate grade point average (GPA)
2. Undergraduate GPA in science and mathematics courses
3. Undergraduate GPA in psychology courses
4. MAT Score
5. Objective comprehensive examination (an achievement test made up of 500 multiple choice items designed to measure familiarity with the con-

<sup>1</sup> The writers wish to thank John Milholland and E. Lowell Kelly for their helpful advice and Gerald Bailey for help in computation.

<sup>2</sup> Now at University of California, Santa Barbara College.

TABLE 1  
MEANS AND STANDARD DEVIATIONS OF MAJOR PREDICTORS  
AND CRITERIA

Variable	Mean	SD
Miller Analogies Test	75.40	8.92
Objective comprehensive test	279.40	33.15
Undergraduate GPA <sup>a</sup>	3.26	.43
Undergraduate GPA, Science and Math	2.96	.74
Undergraduate GPA, Psychology	3.60	.31
Graduate GPA <sup>b</sup>	3.36	.84
Grade on doctoral prelim. examination <sup>c</sup>	9.85	2.29
Faculty rating of potential professional contribution (Percentile)	52.5	16.00
Faculty rating of professional scientific contribution (Percentile)	48.1	21.40

<sup>a</sup> In computing the undergraduate GPA, an A was weighted 4 points, B = 3 points, etc.

<sup>b</sup> The graduate school at the University of Michigan uses plus and minus in assigning grades. In computing the GPA, 1 point was assigned for an A+, 2 for an A, 3 for an A-, etc.

<sup>c</sup> The doctoral examinations are read "blind"; staff members do not know the identity of the students whose papers they are grading. Grading is made on a four-point scale: honors, high pass, pass, and fail. The mean here represents the combined score on all four required examinations and is based on the first administration to the student. (Honors = 1, high pass = 2, etc.)

tent of ten major areas in psychology. This was given at the time the student entered the university.)

These five scores constitute the major predictors in this study. Three measures were used for defining "success" in graduate school:

1. GPA in graduate courses (for the most part, psychology courses)
2. Marks on the preliminary examinations for the doctoral degree
3. Faculty ratings (collected in 1956): (a) potential professional contribution of the student and (b) potential scientific contribution of the student

In the analysis of the data Pearson product-moment and multiple correlations were computed between the major predictors and criteria.

In securing faculty ratings, staff members were first asked to indicate how well they knew each student in regard to his formal academic work, his research skills, and in social situations. Then, for each characteristic being rated the five faculty members who knew the student best were asked to assign a percentile rank, using as a norm group

all the psychology students with whom they were familiar at Michigan. An attempt to force the use of the entire scale was made by first emphasizing the use of the norm group and, second, by preparing a form in which each student's number had to be written within a rather narrow space after each percentile score. Since only one number could be easily written after each percentile, this forced the staff member to rank order the students.

#### RESULTS AND DISCUSSION

The means and standard deviations of the major predictors and criteria are reported in Table 1.

The best predictor of marks in graduate courses in this population is the undergraduate GPA in science courses, and this also holds true for the prediction of grades on the written preliminary examinations (Table 2). Undergraduate GPA for all courses is not quite as good an indicator of success in graduate school as science grades. Undergraduate grades in psychology are only slightly related to graduate grades and not at all to the other criterion measures.

Professors who give weight to marks in mathematics and science in scanning an applicant's record will find some support for their bias in these results. Possibly the better predictions are due mostly to the greater variability of science grades in this sample, or it may be that the subject matter and standards for courses in science are better standardized and make for more reliable grading.

The MAT significantly predicted graduate course grades and was the best predictor of potential scientific contribution of the student. Moreover, it was the only predictive measure to give a significant correlation with faculty rating of the potential professional contribution of the student. (There was some possible contamination in these faculty ratings in that the MAT score may have been remembered by some of the raters from the time when the student applied for admission. Though the contamination was minimal, it cannot be ruled out as a possible confounding factor.) The correlations of the MAT score with the five criterion measures are higher of course if they are corrected for the restricted range of students admitted to graduate work (Tables 3 and 4). The estimated relationship for all applicants, rather than the minority admitted, becomes .37 with prelims. and .48 with ratings of scientific contribution.

TABLE 2  
CORRELATIONS AMONG PREDICTORS AND CRITERIA

	Compre- hensive Exam.	Undergrad. GPA	Undergrad. GPA, Psychology	Under- grad. GPA, Science	Graduate GPA	Pre- liminary Examina- tions	Profes- sional Contri- bution	Scientific Contri- bution
Miller Analogies Test	.31**	-.01	-.08	.07	.21**	.25*	.20*	.34**
Objective comprehensive test		.29**	.23**	.36**	.37**	.20	.06	.20*
Undergraduate GPA			.69**	.77**	.42**	.20	.10	.08
Undergraduate GPA, Psychology				.36**	.15*	.06	.01	.01
Undergraduate GPA, Science and Math					.49**	.27*	.14	.18*
Graduate GPA						.63**	.49**	.58**
Preliminary examination							.39**	.60**
Professional contribution								.68**

Note.—The *N* for all variables is 124, with the exception of the doctoral examinations where the *N* is 59, and the ratings where *N* is 87. The necessary magnitudes of *r* for a one-tailed test are:

<i>N</i>	Level	<i>r</i>
124	.05	.15 and above
124	.01	.21
87	.05	.18
87	.01	.25
59	.05	.22
59	.01	.31

\* Significant at .05 but not at .01 level of confidence.

\*\* Significantly different from zero at the .01 level of confidence.

The lack of relationship between the MAT and undergraduate grades may be due to their combined use as selectors. Students with relatively low MAT scores are admitted if their undergraduate record from a recognized university is exceptional. Thus students accepted who have low MAT scores are not at all representative or typical of students scoring low on this test. This compensatory use of the two selectors makes it more difficult to obtain sizeable correlations between the MAT scores and subsequent achievement in graduate school.

The comprehensive objective examination, covering ten fields in psychology, though not as good in

predicting a single criterion of success as the undergraduate science GPA, nevertheless did surprisingly well in overall prediction of both subjective and objective criteria. It correlated .37 with graduate

TABLE 4  
EXPECTED CORRELATIONS OF THE MAT WITH THE  
CRITERIA IF ALL APPLICANTS HAD BEEN ACCEPTED

MAT with graduate GPA (actual <i>r</i> = .21)	.31
MAT with preliminary examinations (actual <i>r</i> = .25)	.37
MAT with ratings of professional contribution (actual <i>r</i> = .20)	.29
MAT with ratings of scientific contribution (actual <i>r</i> = .34)	.48

Note.—These estimations are computed by the formula:

$$R_{12} = \frac{r_{12} \frac{S_1}{s_1}}{\sqrt{1 - r_{12}^2 + r_{12}^2 \frac{S_1^2}{s_1^2}}}$$

where  $r_{12}$  = obtained correlation,  $S_1$  = unrestricted *SD*,  $s_1$  = restricted *SD* and provide an estimate of what the correlation between the MAT and the various criteria would have been had not the scores on the MAT been used in selection (from Thorndike, 1949).

TABLE 3

STANDARD DEVIATIONS OF THE MILLER ANALOGIES  
SCORES FOR SELECTED GROUPS

	Mean	<i>SD</i>
All applicants ( <i>N</i> = 509)	65.91	13.41*
Students entering program (124)	75.40	8.92
Students taking prelims. (59)	77.50	8.12
Students who were rated by faculty (87)	76.10	8.88

\* The unrestricted *SD* includes entering students, rejected students, and those accepted who did not come.

TABLE 5  
MULTIPLE CORRELATIONS BETWEEN PREDICTORS  
AND CRITERIA

Predictors	Criterion	Multiple Correlation
1. MAT (.21) <sup>a</sup> Undergrad. GPA (.42)	Graduate GPA	.47
2. MAT (.21) Undergrad. Sci. (.49)	Graduate GPA	.52
3. Comprehensives (.37) Undergrad. Sci. (.49)	Graduate GPA	.60
4. Comprehensives (.37) MAT (.21)	Graduate GPA	.42
5. MAT (.25) Undergrad. GPA (.20)	Prelims.	.32
6. MAT (.25) Undergrad. Sci. (.27)	Prelims.	.36
7. MAT (.25) Comprehensives (.20)	Prelims.	.31
8. Comprehensives (.20) Undergrad. Sci. (.27)	Prelims.	.33
9. MAT (.20) Undergrad. GPA (.10)	Faculty rating of potential professional contribution	.22
10. MAT (.20) Undergrad. Sci. (.14)	Faculty rating of potential professional contribution	.24
11. Comprehensives (.06) Undergrad. Sci. (.14)	Faculty rating of potential professional contribution	.15
12. Comprehensives (.06) MAT (.20)	Faculty rating of potential professional contribution	.21
13. MAT (.34) Undergrad. GPA (.08)	Faculty rating of potential scientific contribution	.35
14. MAT (.34) Undergrad. Sci. (.18)	Faculty rating of potential scientific contribution	.37
15. Comprehensives (.20) Undergrad. Sci. (.18)	Faculty rating of potential scientific contribution	.26
16. Comprehensives (.20) MAT (.34)	Faculty rating of potential scientific contribution	.39

<sup>a</sup>Zero order correlations between predictors and criterion are given in parentheses.

TABLE 6  
MULTIPLE CORRELATIONS BETWEEN CRITERIA

Predictors	Criterion	Multiple Correlation
Prelims. (.39) Graduate GPA (.49)	Faculty rating of potential professional contribution	.50
Prelims. (.60) Graduate GPA (.58)	Faculty rating of potential scientific contribution	.65

grades and .20 with potential scientific contribution.

Since the MAT and undergraduate science grades are poorly related in this population, they might in combination become more effective predictors. The multiple correlation for MAT and undergraduate science grades and graduate performance is, however, .52, a very slight improvement over science grades alone (Tables 5 and 6). The best predictor of graduate grades is the combination of science grades and score on the objective comprehensive examination taken at the time of entrance. The multiple correlation here is .60. The combination of comprehensive score and MAT provides the highest relationship with faculty ratings of potential scientific contribution. And prelims. are best predicted by science GPA and the MAT, with a multiple correlation of .36.

Though the predictors show different relations with the criteria, the criteria themselves are moderately well interrelated. Prelim. grades correlate .63 with graduate course grades and .60 with faculty ratings of potential scientific contribution (Table 2). (This latter correlation may be contaminated since the staff member knew about the academic achievement of the student evaluated.)

The results suggest some advantages of using a combination of undergraduate science grades, an objective achievement exam in psychology, and the MAT in the selection of graduate students in psychology. Undergraduate science grades are better predictors of course grades in graduate work than the MAT, but the MAT is a better predictor of faculty evaluation of the scientific contribution of the student. But both predictors are needed to give a significant correlation with prelim. performance. These results were obtained in spite of a restricted range of scores due to the fact that both the MAT and undergraduate grades are used to

select applicants for graduate work. Estimations taking into account the unaccepted applicants improve the correlations with both predictors. Of interest, moreover, is the contribution of the objective comprehensive examination to the multiple correlations with grade point average and potential scientific contribution. In fact, the highest relationship found was the multiple  $r$  of .60 (uncorrected for restricted range) between grades in graduate courses and the combined predictors of undergraduate science grades and scores on the comprehensive achievement examination in psychology.

## REFERENCES

- CURETON, E. E., CURETON, LOUISE W., & BISHOP, RUTH. Prediction of success in graduate study of psychology at the University of Tennessee. *Amer. Psychologist*, 1949, 4, 361-362.
- FRICKE, B. G. Prediction, selection, mortality, and quality control. *Coll. & Univer.*, 1956, 32, 34-52.
- HYMAN, S. R. The Miller Analogies Test and University of Pittsburgh PhDs in psychology. *Amer. Psychologist*, 1957, 12, 35-36.
- KELLY, E. L., & FISKE, D. W. *The prediction of performance in clinical psychology*. Ann Arbor: Univer. Michigan Press, 1951.
- MOORE, B. V. Educational facilities and financial assistance for graduate students in psychology: 1954-1955. *Amer. Psychologist*, 1954, 9, 3-20.
- THORNDIKE, R. L. *Personnel selection: Test and measurement techniques*. New York: Wiley, 1949.
- TYLER, LEONA. *The psychology of human differences*. New York: Appleton-Century-Crofts, 1956.
- WATTERS, G. V., & PATTERSON, D. G. Miller Analogies Test scores and ratings of PhDs in psychology. *Amer. Psychologist*, 1953, 8, 89-90.
- WEBER, JANET, BRINK, W. G., & GILLILAND, A. R. Success in the graduate school. *J. higher Educ.*, 1942, 13, 19-24.

## OF MANAGEMENT AND MEASUREMENT<sup>1</sup>

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AS we have viewed the scene in American management over the past two decades it has become evident that the practice of management has been moving along a continuum, away from the practice of an art and in the direction of the application of science. Various disciplines such as economics and mathematics have made their contributions. We have seen computers move into the management scene and, if we can believe the popular accounts, threaten to take over the whole matter of decision making. Such techniques as linear programming have been much in the news insofar as the practice of management is concerned. If there is one observation that can be made which characterizes shifts in the nature of American management during this period of time, it is that growth and change in American management has been correlated with an increasing quantitative emphasis.

Certainly it would be inaccurate to say that psychology has not had a role in this development. Psychology by its very nature is concerned with the quantification and measurement of human attributes on the one hand and with the prediction and control of human behavior on the other. The psychologist, being an expert in research techniques, in experimental know-how, and in knowledge of human behavior, has certainly made a contribution. However, it is my considered opinion that psychology's contribution to this ongoing scene in the field of American enterprise has been of modest proportions. Psychology could have and should have made a much greater contribution. Two major deficiencies in the field of industrial psychology, in my opinion, partially explain the minimal nature of our contribution. The first of these has been our failure to develop a clear-cut conceptual basis for differentiating between so-called "basic" and "applied" research. And second, I cite our tendency in the past to work on problems that fit our methods rather than to devise methods that are appro-

priate to the major problems of American management.

With respect to our failure to differentiate clearly between basic and applied research, I would like to suggest that the difficulty here has been one of failing to recognize that there are two dimensions involved in these concepts. First, we can think of an "applied versus nonapplied" continuum. To the extent that research results provide guides to action, we are operating at the "applied" end of this continuum. With respect to the problems of management, usually this action involves managerial decision making. To me, however, there is still another continuum foundational to these concepts: the "basic versus specific" continuum. To the extent that the level of generalization to which the results apply is broad, I would consider the research basic. To the extent that there is little or no generalization possible, I would consider the research specific. If one accepts the notion that these two somewhat independent dimensions exist, then it is readily apparent that a given research effort can be, at one and the same time, both "applied and basic." To illustrate: if we are successful in being able to develop a methodological approach that will make it possible for us to determine, synthetically, the predictive validity of specific tests in specific situations, without utilizing the standard validation procedure, this would be a very basic type of research; on the other hand, certainly no one could argue that it is not at the same time extremely "applied." Similarly, we have recently completed research (Lawshe, Bolda, Brune, & Auclair, 1958) that has resulted in the preparation of basic tables from which expectancy chart data can be derived, if one has the coefficient of correlation between the predictor and criterion and certain other data; certainly, this represents a type of activity that is both basic and applied. Still another example will serve to illustrate my point. In some research in the field of role playing in which we have been involved, we have concluded that understanding human behavior in and of itself does not produce the desired result among supervisors, if those super-

<sup>1</sup> Presidential Address to the Business and Industrial Division of the American Psychological Association, Washington, D. C., September 2, 1958.

visors have no methods at their disposal with which to utilize their new understandings. It would seem to me that this is basic and at the same time a highly applied research result.

With respect to the second cited deficiency of industrial psychology—namely, that we have tended to work on problems for which we have already methods rather than to devise appropriate methods for the really significant problems in industrial management—it can be advanced as a corollary that this has led us to preoccupy ourselves with microscopic rather than macroscopic activity. One has only to peruse copies of some of our journals these days to appreciate really how atomistic we have become. Our journals are full of studies, many of which are excellent from the standpoint of experimental design and other scientific niceties, but which really deal with such minute portions of total problems that one wonders if really any true contribution has been made. Somebody once said that we have been swatting fleas when we should have been shooting elephants! Consequently, we have simultaneously seen other disciplines, notably anthropology, sociology, and statistics, becoming increasingly prominent in management research, primarily because their practitioners have been willing to tackle the “big problems.”

As I view the next decade, I see the opportunity for a new era in the field of industrial psychology. Whether it becomes, in fact, a new era or not will depend upon the willingness of industrial psychologists to accept the challenge that is currently being presented to them. An analysis of the problems of American management which are of particular concern to applied psychologists reveals three major emphases: the development of managers, employee motivation with reference to the work situation, and organizational effectiveness. Obviously, if industrial psychologists are to be effective in coping with these problem areas, their efforts will need to be directed in avenues that are both basic and applied as we have defined these concepts.

How this challenge shall be met is of concern here. There is a fundamental pattern, an almost universal approach, which must guide the future activities of the industrial psychologist. This pattern involves five basic steps:

1. Conceptualize the problem
2. Identify the variables

3. Quantify the variables
4. Design an experimental approach
5. Translate results into action

Items 2, 3, and 4, the identification and quantification of variables and the matter of experimental design, are familiar to every psychologist. These steps, in effect, characterize his efforts at being scientific. The other two, the conceptualization of the problem on the one hand and the translation of results into action on the other, tend to be unique insofar as the industrial psychologist is concerned. In order to conceptualize the problem, he most certainly must have a knowledge of psychological content. But, in addition, and certainly just as important, he must be thoroughly conversant with the industrial climate within which he must operate. Without this kind of basic familiarity he cannot possibly conceptualize the problems of American industry to which industrial psychology can make a contribution.

The fifth step, that of translating research results into action, imposes a demand on the industrial psychologist that is not shared by many other scientists. It suggests, first of all, the importance of personal acceptance within the industrial organization. And it certainly emphasizes the need for him to develop the ability to communicate technical results to nontechnical personnel. The implications of both of these for the training of industrial psychologists is certainly self-evident.

Within this framework that I have developed, I would like to present an example which is representative of the kind of activity that will have to be engaged in more and more if industrial psychology is to make its contribution to management in the next decade.

For many years psychologists have been aware of the existence of differential perception. Numerous experimental approaches in the laboratory have demonstrated that, given a physical phenomenon, all persons do not necessarily perceive this phenomenon in the same fashion. However, the importance of differential perception in the industrial situation has probably not received the attention that it should have received. This example<sup>2</sup> in-

<sup>2</sup> This example has been extracted from a thesis prepared under the direction of the author by Robert G. Pfefferkorn, “An Analytical Study of Foreman Accountability and Freedom of Action as Perceived and Delegated,” on file in the Purdue University Library.

volves a study designed to investigate differential perception as it pertains to job content. Specifically, it deals with the foreman's role as he perceives it in contrast to the foreman's role as it is perceived by his superintendent who is his immediate supervisor. Of primary concern was the extent to which differential perception is associated with efficiency of job performance. This problem conceptualizing phase, obviously, involves a kind of marriage of an industrial problem on one hand and psychological content on the other. The investigation itself consisted of five basic steps, each of which will be discussed in turn.

The first step was to develop a foreman activity check list. In order to accomplish this step, a procedure closely related to that called "ratio delay" by the industrial engineer was employed. Observations were made of foreman activity on a systematic sampling basis. An effort was made to see that as many variables were controlled as possible. Specifically, sampling control was exercised with respect to the particular foreman observed, the time of day of the observation, and the shift upon which the foreman was working. A combined objective-subjective recording method was used. Certain objectively determinable facts were recorded; these included whether the foreman was talking with someone, whether it was with one of his employees or someone else, whether he was engaged in desk work, and related sorts of characteristics. In addition, the observers had been trained for the task and recorded in anecdotal or essay form the nature of the action or activity in which the foreman was engaged.

In toto, 6,000 observations resulted from this phase of the investigation. These observations were submitted to a task force of three individuals in the company who used them as a basis for preparing a tentative list of foreman activities. This list was then submitted for review to numerous higher management people and to heads of staff departments; the result was that a number of activities were added, but none were withdrawn. The check list in its final form included 224 items of which the following are specific examples:

No. 8. Decide how many employees are needed for: an operation or to crew a machine.

No. 17. Decide who will be assigned overtime.

No. 132. Change methods in the use of equipment.

No. 173. Order spare parts.

No. 205. Establish quality standards.

These activities were classified through the use of multiple judges into the following four categories:

Manpower	113
Equipment	48
Product	46
Supplies	17
TOTAL	224

The next step was to apply the check list. This application phase consisted of two parts. First, the check list was submitted to each foreman with this question: "Does your superintendent hold you accountable for this activity?" Each foreman was required to make a check mark in front of each activity which he believed his superintendent expected him to perform in the normal course of his duties. The second phase of the application involved submitting a copy of the check list to the superintendent of each foreman with this question: "Do you hold this foreman accountable for this activity?" The superintendent, then, was required to place a check mark in front of each activity which he said he expected this particular foreman to perform. Other data were collected at the same time but are not germane to the phase being reported here.

Step 3 was to compute the extent of agreement between each foreman and his superintendent. A simple overlap statistic was utilized as indicated in the formula:

$$\frac{N_{fs}}{N_{fs} + N_f + N_s}$$

In the numerator we have the number of activities marked both by the foreman and his superintendent. In the denominator we have this same value, plus the number of activities marked by the foreman alone, plus the number marked by the superintendent alone. Since there did not appear to be large discrepancies in the numbers marked by the foreman and the superintendents, a more elaborate index did not seem to be defensible.

The fourth step was to rate the job performance of a sample of foremen. Since all of the foremen in the company were involved in the parent investigation, they supervised a wide variety of activities.

These activities included printing, shipping, maintenance, paper making, and a number of other related job areas. The largest single group for foremen, supervising the same type of work activity, was isolated. Specifically ten foremen, engaged in the supervision of printing involving large multi-colored printing presses, were used. It was the desire of the investigator to obtain an evaluation of the job performance of this group of foremen. It seems desirable to say a few words about the rating procedure employed. First of all, the method of pair-comparison was used. A given rater was asked to pair each foreman with each other foreman and to answer this question: "Which of these two foremen is performing his present job better?" One rater, then, made a total of 45 independent discriminations; the rating was accomplished through the use of a stack of cards, each card bearing two names.

Since the immediate supervisors of these men (their superintendents) had already engaged in the check list phase of the investigation, it did not seem desirable to use them in the job performance evaluation step inasmuch as a certain contamination would result. Therefore, the next best procedure was employed. The rating was done by three industrial relations department staff members. These men, thoroughly familiar with the production activity, were selected because they knew extremely well the foremen being studied. The intercorrelations between the three raters approached unity, and an over-all job performance index was computed by averaging the results from the three raters.

The fifth and final step in the investigation was to compare the percentage of agreement and the performance rating. The relationship between these two variables is shown in Fig. 1. The ordinate, ranging from a low of 45 to a high of 70, is the composite rating of job performance based on the pair-comparison ratings of the three judges. The abscissa, ranging from a low of 55 to a high of 85, indicates the percentage of agreement existing between each foreman and his superintendent as determined by the formula presented earlier. It is strikingly evident that there is an extremely high relationship between the extent to which the foreman and his superintendent understand each other with respect to job content, and the efficiency of

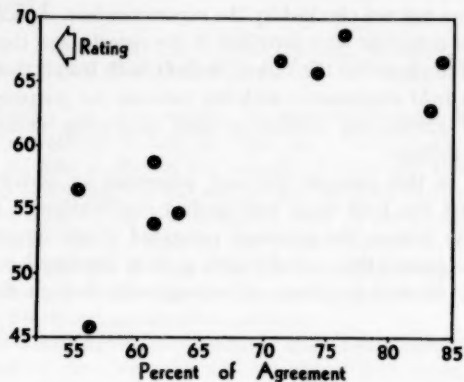


FIG. 1. Scattergram showing the relationship between ratings of job performance and the index of agreement on job content for ten printing foremen.

the foreman's performance as judged by three staff men.

Inasmuch as it was hypothesized in the beginning that to the extent a man and his supervisor perceive the job in an identical fashion, or to the extent that their concept of his job role is identical, superior performance will result, the hypothesis cannot be rejected. Therefore it seems defensible to conclude that the results of this study support the hypothesis that differential perception of job content is a key factor in job performance. This seems to be a reasonably "basic" result. Obviously, replication will be necessary before generalization can be defended. However, its foundational nature is obvious.

What about the use of research results as a basis for action? What about the final step in our universal approach pattern, "Translate results into action." One could certainly question the "applied" nature of the activity if no action followed. In brief, a personalized report was prepared for each foreman. Each report included three sections. The first section listed those activity items which both the foreman and superintendent perceived as constituting part of the job—in other words, they agreed with respect to the foreman's accountability. The two remaining sections listed those activities which were perceived differentially by the two men: Section 2 listed those activities which the superintendent had checked and the foreman had not; Section 3 listed those items checked by the fore-

man but not checked by the superintendent. Spaces for notations were provided in the reports, and they were passed to the superintendent with instructions to hold conferences with his foremen for purposes of eliminating differences and improving understandings.

In this example we have presented an activity that has both basic and applied ramifications. It also follows the approach presented at the outset. It appears that activity such as this, developed out of the real problems of management through the

use of psychological insights and methods, will constitute the industrial psychology of the next decade. To the extent that it does, American management will accept the industrial psychologist to an even greater extent than has been the case in the past.

#### REFERENCE

- LAWSHE, C. H., BOLDA, R. A., BRUNE, R. L., & AUCLAIR, G. Expectancy charts: II. Their theoretical development. *Personnel Psychol.*, 1958, 11, 545-559.

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## Comment

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### A Case History: Are Lectures and Discussion Methods Mutually Exclusive?

This report concerns the conduct of a one-semester course bearing the title, History and Systems of Psychology, at Southwestern at Memphis in the fall terms of 1954, '55, '56, and '57. In 1954, seminar organization was used. Results were distressing. The students did not listen to the reports of their fellow students. In fact, many of them were not worth listening to. In desperation, I usually re-presented the material that the student had half-heartedly tried to prepare and present.

Meanwhile, I had been listening to some comments that seemed to indicate that the *discussion method* could save any situation. With this in mind, I decided to go to Bethel and see what NTLGD had to offer. Like all new things, Bethel has its ages and stages. The 1955 laboratory seems to me to have been in the role playing phase. I left the self-styled cultural island at Bethel feeling a little binge and wondering if I did not have a shade too much role flexibility and hence role diffusion. Was I Miss Prudence Primgarter of the physical education department of the high school at Regional City or was I really me? Determined to get some positive transfer, I resolved to apply role playing to my class during the following term. When I had Köhler, Guthrie, and Tolman react to a problem presented by Thorndike, I got some interesting insights. The students said they found shortcomings in positions that had previously seemed valid.

In planning for the 1955 session it occurred to me that the difficulty in handling theoretical concepts was related to an antiphilosophical bias in our culture. I hoped that this could be overcome in part by structuring the discussion of different systems around the same issues. The first chapter in Hilgard's *Theories of Learning* provided a pertinent set of issues. I took the further precaution of telling students that certain sessions were to be considered primarily discussion meetings, while others would be, at least in part, lecture. Students were asked to make *specific* preparation for discussion meetings.

Part of the boredom of the students in 1954 had seemed to stem from the feeling that what was remote in time must be valueless. I recalled that junior high school students were once reported to have learned history better if it was taught backwards, moving from the contemporary scene back toward the caveman. Accordingly I decided to begin with contemporary theory and move back toward the Greeks.

During the 1955 session, the reversed direction of history seemed to help at times, but I found it hard to see how to discuss, for example, Guthrie and Hull with individuals who had not yet met the point of view of Watson. I decided to pick a point in the middle distance. Since Thorndike and Watson seemed to be in that position, I focused first on Thorndike, then on Watson, then on down to the present, then back to Titchener, and so toward the ancients.

In beginning the 1957 session, I made a very definite effort to show why the course might at first appear either difficult or uncongenial to the students. Then I asked for a report of this material. The most delightful of these essays follows in part.

My dear Mr. Mars:

We in twentieth century America, with our emphasis on technological advancement, and our fanaticism for the practical, are both anti-philosophical and anti-historical. Why? Because philosophy means to us: Sit and think, perhaps even dream. History means to us: the past, that which had best be forgotten in our struggle to "get ahead."

In addition to these two hindrances to inducing students to take and find satisfaction in a course such as History and Systems of Psychology, there are several others. The course is "different," different from the usual type of scientific study offered after the serene calm of General Psychology, where all is in harmony with all.

Why, then, is History and Systems offered as a course, indeed, even encouraged in the schedule? In my opinion, there are two basic reasons: (a) A student cannot be expected to understand the present condition and position of psychology without having some understanding of psychological events preceding and leading up to the current psychological status. (b) A psychologist cannot be expected to make advances in and for his field unless he knows and understands the methods and research which have come before him . . . .

It is true that the course is "different." However, if it is accepted objectively and with interest, it should not be anxiety-producing. It is beneficial to realize that psychology, being a young science, involves different schools of thought. This is the way a young science operates, and, if these schools, developed from increasing knowledge, grave concern, and persistent doubt, give rise to constructive thought and valuable research, they are of great service to one another and to the entire field of psychology. Thus, in History and Systems, opposing forces are seen in the light of an overall view of psychology.

Sincerely,  
EARTHIAN

Has this set of innovations in any way improved the course? Judged on the entirely subjective basis that now I like to teach the course and the students like to take it: yes, it has.

I have no objective evidence on relative amounts learned. The mean grade went up about a full point following the 1954 session and has remained at that level. Comprehensive examinations convey the general impression that their writers are better able to deal with theory in general as well as with the contents of this course in particular.

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### But Are They Symposia?

After an absence of three years from APA meetings, I was impressed by the frustrating and self-defeating quality of the symposia presented at the 1958 convention. Practically all the symposia I attended or heard talked about had too many speakers who read papers far too lengthy, so that no time remained for an exchange of ideas among the participants, let alone for reactions from the audience. Somehow the "sym" part of the symposium had been lost—that interactional ingredient which supposedly is the essence of the symposium. This substantial part of the program seemed to have become a medium for the reading of more or less related research contributions which were too extensive for the regular sessions of papers.

I made a time check, for example, at one well attended symposium—an hour and fifty minutes in length—which had a chairman, three speakers, and a discussant. Apparently 20-minute papers had been called for. The chairman took 5 or 6 minutes, the first speaker 30 minutes, the second 25 minutes, and the third 28, which left the discussant (a prominent figure from a field related to psychology) barely 20 minutes—and, of course, no time at all for discussion among the participants, or for audience participation. Many members of the audience were heard to voice disapproval as they dispersed.

Obviously psychologists do not doubt the value of intercommunication. An APA meeting teems with it, in lobbies, restaurants, bars, and hotel rooms—often with great intensity. The favored type of formal scientific communication always has been the reading of papers. However, the symposium has been gaining in popularity. For example, at the 1948 meetings there were 48 paper sessions and 31 symposia; at the 1958 meetings there were 118 paper sessions and 103 symposia. That is, in the last decade, paper sessions have increased by 146% and symposia by 232%. Presumably the symposium, along with discussion groups, workshops, etc., is considered a superior way of encouraging the interchange of ideas in areas which are new, complex, or controversial. If so, it needs continued experimentation as to form and procedure so that something creative may emerge. Instead our

APA symposia seem to follow a stereotyped pattern and too often turn out to be long-winded paper sessions involving little or no meeting of the minds.

Will the program chairmen for 1959 please think seriously about improving this important part of our national and regional meetings? There are many possibilities, but here are a few procedural suggestions to start the ball rolling. Outline a reasonable number of speakers for the symposium and a plausible time limit for each speaker and discussant. Then apply this formula: cut the number of participants by two and cut at least five minutes off the time allotted for each. Insist that each contribution be spoken rather than read. And pick a dynamic chairman who does not hesitate to stem the verbal flow, no matter how intense or how prominent the speaker. This kind of thing, of course, is a mere beginning; a good program committee can suggest many more improvements if the members realize the need for them.

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### Certification of Psychologists

During the past year, in discussions of the question of certification of psychologists, I have found that many are not familiar with two important problems associated with the trend of certification of the whole title. One consequence of such certification is that an academic psychologist cannot consult as a *psychologist* for a fee in his own specialty, however remote from contact with individual patients, without being certified or without in some way circumventing the law. This is a restriction that does not exist for nuclear physicists, physiologists, chemists, or others in any *academic* area. It stands, as such, as a limitation on traditional academic privileges.

A second consequence is that restriction of the whole title creates a situation in which misunderstandings arise with sister disciplines that share subject matter or titles. For example, sociologists have trained persons in and claim competence in social psychology. Grandfather clauses that make it possible for sociologists trained as social psychologists to be certified do not resolve the problem, since: (a) Sociologically trained social psychologists may question the right of psychologists to examine their credentials. (b) This begs the question of why social psychologists should be certified in the first place. (c) Government, educational, and other agencies are likely to accept the standards associated with certification of psychologists as the standards of training for social psychology (i.e., a social psychologist must be a psychologist per se). This, in

effect, pre-empts the prerogative of future training of social psychologists.

On the other hand, certification of a specific title, such as Certified Psychologist, leads to neither of the two above consequences; and, in the sense of recognition that the persons who use the title have been certified, what more obvious title is there? Such a title cannot be considered less efficient in handling the problem of charlatans than certification of the whole title since neither form of certification has any bearing on who practices psychology.

Persons who discuss this generally recognize a valid basis for the comments. In fact, they often suggest other problems or express the opinion that blunders have been made in regard to certification, including, possibly, letting the state organizations try for what they could get instead of developing a central policy on the issue. Still, most persons say the profession is committed to certification of the whole title and *it is too late to do anything now*. Aside from the issues involved and whether or not there have indeed been blunders, the implication is that the profession would not want to change, right or wrong; it would not be possible to rouse any action that would imply an alteration rather than a compromise with the current situation. What is disturbing is that considering the self-conscious concern with ethics in psychology, this seems to be a rather cynical view of the profession.

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### Outstanding Contributors to Psychology

Psychologists continue to demonstrate as much fascination with themselves as with any other object of study. Unusually high returns to opinion questionnaires about "outstanding contributors" to psychology emphasize this self-interest. Recent studies by Ruja and Dennis (*Amer. Psychologist*, 1956, 11, 148-149; 1954, 9, 34-36) identified outstanding psychologists on the basis of productivity and frequency of citation respectively. Two surveys of the opinions of American psychologists about outstanding psychologists give us an additional basis for identifying "greatness" in our field. The studies here reported were made by senior students at the College of Wooster as their Independent Study Projects in 1956 and 1957.

*The 1956 Study: Who's Who in Psychological America.* Hope Hunter conducted the first questionnaire study in 1956 to discover which American psychologists were considered "outstanding" in the opinion of a random sample of the members of the APA. Subjects receiving the questionnaire were asked to rank the top ten "outstanding" American psychologists from a list submitted to them.

TABLE 1

TEN OUTSTANDING AMERICAN PSYCHOLOGISTS ACCORDING TO "VOTES" AND "WEIGHTED SCORES" OF AMERICAN PSYCHOLOGISTS

Votes		Weighted Score	
1 (199)	William James	(1,676)	1
2 (182)	Edward L. Thorndike	(1,254)	2
3 (156)	Lewis M. Terman	(863)	3
6 (111)	John Dewey	(734)	4
7 (110)	Kurt Lewin	(680)	5
5 (116)	Clark L. Hull	(634)	6
4 (131)	Louis L. Thurstone	(627)	7
9 (92)	G. Stanley Hall	(579)	8
8 (106)	Robert S. Woodworth	(566)	9
10 (91)	John B. Watson	(557)	10

Three criteria were used as a basis of placing names on this list. First, all who were Past Presidents of the APA were placed on the list. These names represented previous opinion of the profession regarding its outstanding members. Second, names included in Murchison's *History of Psychology in Autobiography* which were not duplications were added. Then finally, previously undiscovered names mentioned with prominence in Brett's *History of Psychology* were added.

The questionnaire was sent to a random sample of 200 Fellows and 200 Associates listed in the 1955 APA Directory. 245 replies were used in compiling the statistics in Table 1. This was a 62% return.

Responses were handled both as "votes" which disregarded the rank order and as "weighted scores" which gave a value of 10 to the first ranking, 9 to the second position, and so on to 1 for the tenth rank. In addition, separate lists were constructed to identify the difference between selections made by the Fellows and those made by Associates.

The younger members of the profession made some changes in names to the above list at the lower end of the ten outstanding psychologists. Edward C. Tolman replaced Woodworth in their weighted score list of the top ten. On the list made up of total times mentioned (at any rank order position) Tolman replaced Watson from the list of the first ten; meanwhile Carl R. Rogers tied with Woodworth for tenth position.

Within these eight names agreed upon by both Fellows and Associates, one significant disagreement exists. Kurt Lewin is rated tenth by the other members of the profession whereas the Associates rank him third, coming immediately behind the clear front-runners for both, namely, William James and Edward L. Thorndike.

*The 1957 Study: Psychological America's Who's Who.* Lynn Wickard made a questionnaire study the following year in 1957 to find out how American psy-

chologists would rate psychologists disregarding national location.

The list used by Wickard was derived in the following manner. First, an inclusive list containing 439 names was compiled from names mentioned in various histories of psychology, introductory texts, necrologies, and publisher's book lists. Secondly, the list of 439 names was condensed to 237 names through the judgments of eight local members of the psychological profession regarding the 100 outstanding psychologists. To the 237 names, they added 14 which they considered omissions. As a third step, the list of 251 names was then sent to the 28 outstanding American psychologists listed in Hunter's questionnaire of 1956 who were still living. 24 replied. Each of them was asked to check 25 names on the list of 251 names which they considered "to have made an outstanding contribution to the field of psychology." These 24 men checked 96 names and added one.

The final list of 97 names was then sent to a random sample of 400 members of the APA. 216 responses were received. This was a 54% return. Of these, 164 were Associate members and 52 were Fellows. Respondents to the questionnaire were asked to rank the ten most outstanding contributors to the field of psychology on the list of 97 names according to their personal "global estimate" of contribution to the field.

The two sets of first ten psychologists according to "votes" on the one hand and according to "weighted scores" on the other are given in Table 2. The hiatus following the sixth line in Table 2 represents the point below which disagreements between "votes" and "weighted scores" appear. Wundt who is in eleventh position by votes jumps to seventh position because of the strong weighted value of the rank assignments. Thurstone holds ninth position by votes but drops to

seventeenth position because of the low rank value assigned to those votes.

Because there is some correlation of age with membership status, the differences in the opinions of Fellows as against Associates will indicate changes in the influential figures for different generations of psychologists. The Fellows give importance to Dewey, Watson, Galton, and Köhler which is not shared by the Associates. In turn the Associates give a significance to Clark Hull and Carl Rogers which is much greater than their elders do. The sharpest difference of all again in this study as in the 1956 study revolves around the figure of Kurt Lewin. Lewin, it may be noted, places sixth both in total votes and in weighted scores when the response of Fellows and Associates are combined as in Table 2. This is due almost entirely to the high importance assigned to him by Associate members. Lewin does not place among the first fifteen in "votes" cast by Fellows; neither does he place among the first twelve in weighted scores assigned by Fellows! Yet he holds a secure sixth position on the overall. It is clear that one's attitude toward the significance of Kurt Lewin separates the older from the younger generation of American psychologists.

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### Group Participation and Conformity

Today the popular mind is making a virtue of non-conformity. The molders of public opinion are telling their followers that they should not be so influenced by others. In order to conform they must nonconform. In order to get "in" they must show they are "out."

In spite of the work of Asch and of Witkin, psychologists are often seen as engineers of conformity. White's *Organization Man* pictures psychologists as culprits making the independents toe the line. Now the mass media perceive the threat of "subliminal perception" as another way that psychologists may be making robots of the public.

Psychologists who work with problems of groups and group development have received particular attention in this regard. In general the kinds of experience which people undergo in group training laboratories and in sensitivity training are said to make for slavish adhesion to the group. Since many psychologists are laboring in this particular vineyard trying to give many some sensitivity to what goes on in groups and to help them to facilitate complete participation, it is interesting to inquire whether such group participation does in fact produce conformity.

Recently, three of us had an opportunity to run a two-day group training laboratory for leaders of student organizations in a small college. It was a short session,

TABLE 2

TEN OUTSTANDING CONTRIBUTORS TO THE FIELD OF PSYCHOLOGY ACCORDING TO "VOTES" AND "WEIGHTED SCORES" OF AMERICAN PSYCHOLOGISTS

Rank	Votes	Name	Weighted Scores	Rank
1	184	Sigmund Freud	1,627	1
2	122	Ivan Pavlov	803	2
3	116	Alfred Binet	734	3
4	91	William James	706	4
5	85	Edward L. Thorndike	432	5
6	80	Kurt Lewin	412	6
11	56	Wilhelm Wundt	381	7
8	68	Lewis M. Terman	379	8
10	61	Clark L. Hull	347	9
7	69	Hermann Rorschach	302	10
9	66	Louis L. Thurstone	230	17

but it was otherwise like a number of other such laboratory experiences. Small groups with the trainer were thrown upon their own resources and allowed to work on the problems they chose. Intermittently the trainer interpreted what was going on in the way of group process. There were reports of a good bit of subjective involvement on the part of the student leaders who participated.

We were interested in finding out if there were attitude changes concurrent with the training. Following a suggestion of Vincent Glaudin's we used an attitude scale which asked for forced choices between proverbs. Thus the subjects were presented with pairs of eminently respectable alternatives and asked to choose which of each pair made most sense to them in terms of getting along with others. For example, they might be asked to choose between "Too many cooks spoil the broth" and "Two heads are better than one." Of the 43 participants in the conferences, 20 took the Proverbs Test before and after. We were interested first in finding out whether individuals' choice of proverbs would agree more with that of psychologist judges after the training than before. Of course, we found that there was such an effect, and a comparable control group showed no change ( $t = 3.52$  for the before and after difference in the experimental group). We were interested in a second kind of comparison. In our scale we had a few pairs of proverbs which we thought would distinguish between those who were actively independent and those who were passively conformist. For example, one item asked the subjects to decide between "Fifty million Frenchmen can't be wrong" and "God and one man make a majority"; another asked subjects to choose between "Better safe than sorry" and "Nothing ventured, nothing gained." There were only five forced choices of this sort, but it was predicted the experimentals would change towards the active and independent direction. This prediction was confirmed ( $t = 1.92$  for a one-tail test). There was no such change in the comparable control group.

Apparently this kind of group experience which is designed to open people's receptors to the reactions of others may actually make the persons more independent in their attitudes. Perhaps it was that these young people, who were all social acquaintances of each other, had enough doubt about where they stood with each other to inhibit the frankest kind of interaction. Once they developed more sensitivity to each other and clearer perceptions of other's feelings, their attitudes changed to favor franker and freer self-expression.

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### An Industrial Psychologist's Lament: The Problem of Shrinking Sample Size

This note reports no experimental findings nor is any theoretical argument advanced. Instead, we seek simply to illustrate with a specific example one of our most vexing problems: that of the shrinking sample. This is a problem faced rather rarely by psychologists engaged in other activities. For example, the animal psychologist manages to maintain a relatively constant sample size; and most academic researchers enjoy the phenomenon of the "captive subject"—their sample sizes often equal the number of students in any particular class or series of classes. In like fashion, the clinical psychologist usually deals with small groups or with individuals; even when engaged in longitudinal research studies, the clinician usually manages to maintain fairly good control over his sample size.

So it is that industrial psychologists feel a strange discontent when, as they chat with their university, college, and hospital colleagues, they hear the old refrain: "Gee, it must be fine to work in a large company and have all those people available for research." In response to this, industrial psychologists usually nod a bit and make little or no great effort to correct the misconception. After all, it is difficult to change beliefs, even those of psychologists; and, besides, industrial psychologists may feel just a wee bit guilty about the fact that they have such poor control over their samples.

To illustrate our point with some rather tragic data, we would like to outline the history of the sample involved in a recent study conducted by us in Minnesota Mining and Manufacturing Company. The study involved simply an analysis of the concurrent validity of a battery of psychological tests for measuring sales effectiveness. It began rather auspiciously with a potential sample size of 862 3M salesmen located throughout the country. The 862 included all 3M salesmen who had returned a postal card indicating that they desired to participate in the research study. Supposedly, they understood the extent of cooperation necessary (i.e., take approximately four hours of tests), and they were expected to be wholly cooperative in doing so.

Table 1 traces the sad story. First of all, it is apparent that these "volunteer" salesmen became less cooperative when confronted with the actual test-taking task. As a result, only two-thirds of them returned properly completed tests—this in spite of their initial offer of cooperation and in spite of many follow-up letters. At any rate, the initial sample absorbed a 33% "shock" and ended up with only 581 subjects.

Secondly, criterion information was unavailable for all salesmen in the sample. This occurred for a variety

TABLE 1

ORIGINAL VOLUNTEER SAMPLE SIZE AND REMAINING SIZES  
AFTER VARIOUS ATTENUATING INFLUENCES IN THE  
3M CONCURRENT VALIDITY STUDY

Product Division	No. of Salesmen Volunteering to Participate	No. and % Returning Tests	No. and % for whom Criterion was Available	No. and % Having Both
1	268	158(58.9%)	226(84.3%)	144(53.7%)
2	191	155(81.2%)	158(82.7%)	130(68.1%)
3	403	268(66.5%)	322(79.9%)	232(57.6%)
Total	862	581(67.4%)	706(81.9%)	506(58.7%)

of reasons outside of our control. In some instances, managers simply refused to supply information bearing on the job success of their salesmen or they believed, for one reason or another, that they could not meaningfully provide such information. Often, it was claimed that the person being appraised was on a selling job so unique or otherwise offering such different circumstances that performance on the job could not be judged adequately. All these problems are good and substantial reasons, but they do not help in the case of the shrinking sample. The shrinkage due to lack of criterion data amounted to nearly 20%; criterion information was available for only 706 of the original 862.

Finally, as might be expected, the salesmen for whom test information was available were not necessarily the same as those for whom criterion information was available, and vice versa. The net effect was, of course, to reduce the sample size still further to a low of 506 cases. Thus the total sample shrinkage amounted to over 40% of the original volunteer sample.

More problems could be mentioned which confounded the situation further. Not the least of these was the discovery that age and experience were related to overall appraisals of selling effectiveness, thus demanding experimental control of these contaminating variables. By holding age and experience relatively constant, we witnessed a further awesome decrease in sample size to a low of 248. Even to a hoary and well-hardened industrial psychologist, this is a heart-rending fall-off. It is possible, of course, that we could have used statistical techniques (e.g., covariance analysis) to take account of the experience and age variables; this did not appear feasible, however, because the relation was sharply curvilinear (an inverted U distribution) and because most statistical controls would be inadequate for purposes of item analyses.

In spite of all this, the study was conducted, and fairly meaningful and helpful results were obtained—certainly, more meaningful, we presume, than they would have been had we “forced” collection of criterion

information, “forced” test taking by management fiat, or not taken account of the age and experience factors.

What then is the moral to this sad story? Nothing, really, other than to point up the kinds of factors affecting industrial samples and to beg a bit of sympathy from our more rigorous colleagues. Perhaps, on long winter evenings, the experimentalists will shed a tear or two for us industrialists who, even though we strive heartily to do so, have a hard time keeping our sample size from collapsing before the “hard knocks” of real life.

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### A Note Concerning Sensory Deprivation

In the short span of a few years the topic of sensory deprivation has become fashionable in psychological society. It has generated considerable experimental research, has proven itself worthy of foundation support, and has been a popular theme at APA and regional meetings. What reputable hospital lacks a sensory deprivation project? All that now remains is for the subject to be dignified with classic literary precedence.

In Chapter 93 of *Moby Dick*, Melville portrays an event which predates Lilly's “two-men-in-a-tub” experiment. The chapter opens with Pip (the tambourinist) being forced to serve as an oarsman in a whale-killing longboat. So distasteful was this occupation to Pip that he jumped from the boat each time a whale was harpooned. The first time, Stubb (the second mate) cut the harpoon line to save Pip; but in so doing, they lost the whale. The second time, Stubb did not cut the line, choosing to save the whale.

Hence, when the whale started to run, Pip was left behind. . . . It was a beautiful, bounteous, blue day; the spangled sea calm and cool, and flatly stretching away, all around, to the horizon. . . . In three minutes, a whole mile of shoreless ocean was between Pip and Stubb. . . .

Now in calm weather, to swim in the open ocean is . . . easy to the practiced swimmer. . . . But the awful loneliness is intolerable. The intense concentration of self in the middle of such a heartless immensity, my God! who can tell it? Mark how when sailors in a dead calm bathe in the open sea—mark how closely they hug their ship and only coast along her sides. . . .

Stubb [had not] really abandoned the poor little negro to his fate . . . because there were two boats in his wake. . . . But . . . those boats . . . gave chase [to their own whales]. . . . Pip's ringed horizon began to expand around him miserably. . . . The ship itself at last rescued him; but from that hour the little negro went about the deck an idiot; such, at least, they said he was. The sea had jeeringly kept his finite body up, but drowned the

infinite of his soul. Not drowned entirely, though. Rather carried down alive to wondrous depths, where strange shapes of the unwarped primal world glided to and fro before his passive eyes; and the miser-merman, Wisdom, revealed his hoarded heaps. . . .

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### On the Extension of Coghill's Developmental Principles

It is the thesis of this note that the commonly accepted primary development trends outlined by Coghill (1929) and elaborated on by Scammon and Calkins (1929) represent truncated expressions which consider only part of the entire developmental sequence. Development, considered broadly, encompasses the entire period from birth (or perhaps conception) to death. For example, Kimble stated: "The study of psychological development embraces a broad field covering behavioral changes . . . in the individual, from conception to old age" (1956, p. 171). Accepting this definition requires an extension of Coghill's principles. It is contended that these principles may be so expanded as to cover the entire developmental period and that some probable practical implications may be thereby derived.

Coghill's original thesis asserted that there is control of mass motoric action before specific action. This trend from mass action to specific action may be modified for our purposes to read, "*mass action to specific action to mass action*," for we have observed that behavior requiring specific action apparently disappears first with advancing years. The individual is left in old age still able to perform gross behavioral acts but less able to perform acts requiring more specific, finer muscular control. (Supporting observations will be deferred until three developmental principles have been restated, for in observations of molar behavior it is often difficult to distinguish among them.)

The development of motoric control of the cephalic region has been observed to precede control of the caudal region. Sometimes this is simply called the cephalocaudal developmental trend, as most of us have learned. This may be modified to indicate that loss of control, as one develops beyond maturity, proceeds from the caudal area to the cephalic area. Abbreviated, the trend may be called "*cephalo-caudal-cephalo*."

The final developmental principle to be elaborated upon states that development of motoric control proceeds from the proximal areas to those areas more distal. As we have observed that loss of distal control appears to occur first, we have extended this principle to read, "*proximo-distal-proximo*."

There are numerous observations that seem to sup-

port these suggested extensions of the familiar developmental sequences. Probably the most common opportunity for most of us to observe a relatively complete developmental sequence from birth to death is not in our fellow man but in man's best friend, the dog. With the dog, the cephalo-caudal-cephalo sequence seems quite conspicuous. Just as one sees the puppy boost himself up with his forelegs and struggle to control his rear legs, one notes the remarkable similarity in the behavior during the dog's declining years. The caudal appendages are the last to become appropriately coordinated and controlled and are the first over which control is lost.

Since man has evolved an upright, bipedal gait using his posterior appendages almost exclusively for locomotion and his anterior appendages for sharply different prehensile, nonlocomotor functions, a direct observation of the principle in man is more difficult. Nevertheless certain data and observations of human behavior support the thesis.

For evidence from the clinic we turn to Wechsler's data concerning "mental deterioration" with increasing age. The hypothesis requires that performance on subtests involving hand-eye coordination—involving distal parts and specific, fine movements—will "deteriorate" first as an adult individual develops beyond early adulthood, through later adulthood, toward old age. Performance on subtests requiring only cephalic or proximal functions should tend to persist or have less of a decrement as age increases.

Wechsler has indicated that certain of his subtests do "hold up" while others "do not hold up" with advancing age (1944, p. 64). Of the five subtests which "hold up," only one (Object Assembly) requires the use of distal motoric activity (the maintenance of ability on the Object Assembly subtest has been at least partially explained as a possible result of special practice of older persons with puzzles similar to this task). Among those subtests which "do not hold up," we find three which require distal coordination for their successful completion (Digit Symbol, Block Design, and Picture Arrangement).

Some further common supporting observations may be worth citing. The trembling teacup resulting from decreased coordination of the fine distal muscles is immediately associated with elderly individuals. The disinclination of people advanced in years to work standing is perhaps suggestive of the trend we have outlined. And in rising to a standing position from sitting, one often sees an elderly person lean forward and boost himself upward with his arms.

In the development of senile dementia we find two measurable trends which seem in accord with the hypothesized extension of these principles. The development of tremors occurs first at the extremities, usually

in the fingers as noted above, and becomes progressively more gross as the disorder develops until practical control of the whole appendage is lost. Perhaps related or parallel to this process is the gradual but progressive loss of memory: recall of recent events is first to suffer, followed by gradual impairment of memory of earlier events. The ultimate dementia condition typically is severe disorientation and incontinence.

Finally, we may cite the observation of veteran athletic coaches. Certain athletes specialize in the muscular development of both their arms and legs; and, although the appendages serve different functions, a limited comparison may be useful. It is commonly noted that baseball players, including pitchers, "die legs first." And further, it is often noted that a boxer is only as good as his legs, indicating that punching prowess (a more anterior function) outlasts the staying power of the legs.

As a second part of this note, the idea is advanced that an awareness and consideration of these complemented developmental principles will be of value to persons interested in gerontology and geriatrics. The rapidly increasing number and percentage of the world's population which is beyond "the middle years" makes it of some import for society to plan to utilize the potential of these older individuals. And if it is good business to hire the handicapped, as we have been telling each other so often lately, then it should be good business to hire those whose abilities are becoming restricted physically by advancing age. One may derive the concrete suggestion that elderly individuals will be more likely to succeed on jobs involving proximal, cephalic, and mass motoric action and where they will not be required to engage in highly precise distal or caudal activities. From these considerations one may make specific predictions regarding the kinds of jobs on which people advanced in years may be able to serve themselves and society best.

#### REFERENCES

- COGHILL, G. E. *Anatomy and the problem of behavior*. New York: Macmillan, 1929.
- KIMBLE, G. A. *Principles of general psychology*. New York: Ronald Press, 1956.
- SCAMMON, R. E., & CALKINS, L. A. *The development and growth of the external dimensions of the human body in the fetal period*. Minneapolis: Univer. Minnesota Press, 1929.
- WECHSLER, D. *The measurement of adult intelligence*. New York: Williams & Wilkins, 1944.
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#### A Psychiatry Institute for Seminarians

The clergyman's role in fostering mental health and his need of a fundamental acquaintance with its prob-

lems are being discussed with constantly growing interest. One practical means of encouraging such a fundamental knowledge is an institute providing an introduction to basic concepts in psychology and psychiatry, the workers in these fields, and possibly even the mental hospital itself.

An institute of this kind that received enthusiastic approval from all participants was conducted last year at the Metropolitan State Hospital in Waltham, Massachusetts, for Catholic seminarians from Weston College (Massachusetts). The sessions were held one day a week for five weeks. They included lectures by staff psychiatrists, psychologists, therapists, and other hospital personnel; clinical demonstrations; and ward visits. An outline of the program may be of interest to those considering similar institutes.

#### FIRST SESSION

- 9:15 The mental hospital—introductory description
- 10:00 Admission, observation, diagnosis, treatment procedures
- 11:00 Nurses' role
- 1:30 Classification of mental illness
- 3:30 Staff meeting, ward visits

#### SECOND SESSION

- 9:15 Insulin therapy
- 10:00 Electric shock treatment
- 11:00 Chaplain's role
- 1:30 Freudian concepts—some mental mechanisms
- 2:45 An existential approach to mental health
- 3:30 Staff meeting, ward visits

#### THIRD SESSION

- 9:15 Behavior laboratory
- 9:45 Special therapy group
- 10:15 Occupational therapy
- 11:00 Volunteer unit
- 1:30 Chronic cases
- 3:00 Male service
- 4:00 Ward visits

#### FOURTH SESSION

- 9:15 Social service in mental hospitals
- 10:15 Psychology in mental hospitals
- 11:15 Affiliate nurse program
- 1:30 Current European trends in treatment
- 3:30 Ward visits

#### FIFTH SESSION

- 9:15 Children's unit—ward visits
- 10:00 Children's unit—superintendent's appraisal, social service, special school, psychological services
- 1:30 Jungian psychodynamics
- 2:30 College nurses' program
- 3:30 Ward visits

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# Psychology in Action

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Editor's Note: Since the 1957 International Congress of Psychology in Brussels, communication between American and Soviet psychologists has increased markedly. In 1958, several APA members visited the USSR to view at firsthand current developments in Soviet psychology. One of these—Henry Chauncey—was a member of a team of American educators with special interests in Soviet primary and secondary school education. The team's visit to the USSR was officially sponsored; in return, a Soviet team of educators, including among its members Anatoli A. Smirnov, President of the Soviet Psychological Society, made an official visit to the USA. Three other APA members—Hadley Cantril, Mark A. May, and Henry A. Murray—spent November 1958 in the USSR as unofficial visitors under the aegis of the Institute for International Social Research. The two articles that follow discuss various aspects of Soviet "Psychology in Action" as seen by Murray, May, Cantril, and Chauncey. Because of the interests of APA members in psychology abroad, articles on psychology in other parts of the world will continue to appear in the American Psychologist.

## SOME GLIMPSES OF SOVIET PSYCHOLOGY

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THROUGHOUT November 1958, the three of us enjoyed the opportunity and unofficial privilege of visiting the Soviet Union under the aegis of the Institute for International Social Research. Our major purpose was to see psychology at work in a variety of experimental laboratories at institutes, universities, and hospitals and, through conferences with Soviet psychologists, to learn as much as possible about their spheres of scientific interest, their aims, problems, theories, instruments, and techniques. Our number was happily completed by two social scientists, who, at different times in the past, had lived in the Soviet Union and knew the language: Frederick A. Barghoorn, of the Department of Political Science at Yale University, and Melville Ruggles, of the Council on Library Resources in Washington, D. C. Their constant congenial company was our guarantee of abundant, facile communication not only with our professional hosts but with people we encountered in the streets, in shops, museums, theaters, restaurants, and hotels.

For Americans the chief sources of information about developments of psychology in the USSR and in other communist countries have been Venable's *Human Nature: The Marxian View* (1945), Bauer's *The New Man in Soviet Psychology* (1952); the reviews of London (1951), Razran (1957, 1958), Mintz (1958); Simon's collection of selected articles by Soviet psychologists (1957); and, most recent, the volume edited by Brazier (1959) which reviews in considerable detail Russian contributions to neurophysiology. To the substance of these papers there will be much to add in

the near future, since quantities of completed researches have yet to be published or yet to be made readily available to Western reviewers and translators.

Our own cullings from this recent produce being necessarily sparse and superficial, we have little if anything to transmit that meets the requirements of science in respect to specificity, precision, or novelty. Soviet psychologists had a great abundance of goods, technical and intellectual, for display, discussion, and consumption. The pace was fast, our stay short. The main reason for writing this paper is that we happen to have been about the earliest and the latest small party of American psychologists to be granted a rather broad, systematic, and direct exposure to the Soviet output in our field, and we thought some of our colleagues in this country might care to share with us a few of the general impressions we received, digested, and brought home.

Although October might have been still better, November was a good month to choose, because at that season the weather is likely to be good—good and cold, with an occasional fall of snow that calls out the snug fur hats, dignifies the landscape, and testifies to one's veritable presence in the Russia of the great novels—and because there are fewer tourists then, and the psychologists are not on vacation and not so harassed by pressing administrative duties that they can find no time for visitors.

What struck us first, second, third, and last—despite foreknowledge of its regularity—was the spontaneous, hearty, and unfeigned cordiality of the receptions we

were given in every city we visited. Soviet colleagues met us and later said farewell to us on airfields and railroad platforms, even after midnight and before dawn. We were shown everything we asked to see, and a great deal of time was devoted to our instruction through demonstrations and discussions, not only at academies and research laboratories but at hospitals, schools, nurseries, and youth centers (the Palaces for Young Pioneers). Each of us psychologists was invited to lecture at the Institute of Psychology in the Academy of Pedagogical Sciences in Moscow; two of us addressed students and faculty of the Department of Psychology in the University of Moscow, and one of us gave a talk at the University of Leningrad. Needless to say, we selected our own topics. In addition to all this we were most courteously and warmly entertained at the homes of Luria and Leontiev and at jovial lunches and dinners marked by rounds of hopeful toasts and vodka-loosened wit and sentiment.

The *deus ex machina* responsible for most of this extraordinary hospitality was Alexander R. Luria of the Institute of Defectology, whom two of us had known since 1929 when he attended the International Congress of Psychology at New Haven. It was he, most generous of his time, who advised us wisely in making out our program—with art on one side and science on the other—and who made arrangements for our receptions at the various institutions in Moscow, covering more than two weeks, as well as for our trips to Leningrad, Kiev, and Tbilisi, which were squeezed into less than two weeks. (As it unfortunately turned out, we were unable to fit into our tight schedule a visit to the distinguished psychologists of Kiev.) For special aid at special times we are also indebted to many others, most particularly to A. A. Smirnov, Director of the Institute of Psychology in the Academy of Pedagogical Sciences, to Boris G. Ananiev of Leningrad, and to A. Prangishvili of Tbilisi.

We were accompanied throughout our trip by an able young Intourist guide who had, among other assignments, the rather unusual one of translating our lectures. Occasionally, in Moscow, Luria helped him with some of the more technical or theoretical words and sentences.

#### HOW PSYCHOLOGICAL RESEARCH IS ORGANIZED

All scientific and scholarly pursuits in the Soviet Union are organized under an elaborate system of academies. Within each academy are various institutes. In Moscow, nearly all psychology comes under the Academy of Pedagogical Sciences which has eight institutes, including the Institute of Psychology and the Institute of Defectology. The Institute of Psychology has a staff of 90, 11 of whom are heads of laboratories, 37 of whom are engaged in full-time research. Psycho-

physiological research on the higher nervous system comes under the Academy of Medical Sciences in the Institute of Physiology and Psychiatry, while the research into psychological theory of Rubinstein and his group is in the Institute of Philosophy under the Academy of Science. Although the various institutes are primarily concerned with research, some members of their staffs teach courses at the university.

A high degree of coordination and integration in psychological research is attained by long-range planning and by the selection of what appear to be the most promising research projects by the different investigators at the institute level. These projects are then reviewed by the senates of the academies involved, are modified or coordinated with research plans of other institutes within the academy, possibly sent back for revision, and then finally approved by vote of the academy. Research projects, of course, carry budgets with them. We were told that the Institutes of Psychology and of Defectology have a current budget of about ten million rubles (\$1,000,000) each. The government grants seem to be ample for the research that is undertaken. We saw a good deal of new and costly apparatus and equipment in the various institutes, especially in Moscow. Some of the laboratories outside of Moscow are poorly housed and equipped, but we were told that government plans for new facilities were under way. Psychologists seem to be well paid and highly respected. The senior professors are assigned cars and chauffeurs.

#### BASIC TENETS OF SOVIET PSYCHOLOGISTS

It is difficult to do justice to the credo of any school of thought in a necessarily small compass, and those who are curious about these matters should turn to Simon's compilation (1957) and see how the Soviet psychologists themselves set forth their theses. The following are no more than hints:

1. That is is best for Soviet psychologists to attain and maintain consensus among themselves on basic issues, rather than to sanction differences. They achieve this to an optimal degree by accepting the writings of Marx, Lenin, and Pavlov as doctrinal foundations for all their scientific statements and then by criticizing each other whenever deviations from these testaments are detected. Unanimity is further facilitated by drawing fine dividing lines and setting up boundaries to differentiate themselves from psychologists of the outer world, especially Freudian psychoanalysts and Watsonian behaviorists of the 1920's. In these respects they seem to be a little closer to medieval theologians than they are to those who cleave to one or another party line in our own country.

2. That all conscious mental processes are consonant with and dependent upon physiological (physical, material) processes in the brain as stated by Marx, Lenin, and Pavlov. "Matter" is primary, "psychological" processes are secondary. Secondary processes emerge from the interaction of the organism with its environments and have their own unique properties and laws, which cannot be reduced to the laws of neural activity. Psychology is a science in its own right but is dependent upon human neurophysiology. Hence, precise instrumental studies of higher nervous processes—as these are manifested, for example, by the establishment and extinction of different kinds of conditioned reflexes—provide the best foundation for the development of theories about the operations of conscious processes. This proposition dates from the Enlightenment, if not from Democritus, and is not distinguishable, so far as we can see, from the dual-aspect theory as held by the majority of Western psychologists.

3. That human psychology is qualitatively different in certain critical respects from the psychology of lower organisms. Consequently, the first phase of a comprehensive program of psychological research calls for the application of Pavlovian principles and techniques to the study of the higher mental processes of human beings, particularly of children, rather than of animals. We were told several times by different psychologists that Pavlov's principles are not now adequate for human behavior and must be extended and revised to some extent in order to provide adequate formulations of human activities. Only a confirmed animal psychologist might be disposed to quarrel with this tenet.

4. That the most important problem for Soviet psychology, both in theory and in practice, is that of the natural stages and external determinants of human development from birth forward. This includes the development of the nervous system and of the higher nervous properties, the development of a child's capacity to perform self-directed (voluntary) acts, the development of various physical and mental abilities, the development of the capacity to plan activities and to economize time, the development of suitable social attitudes and suitable attitudes toward work and play. In the field of education the attainment of desirable social dispositions was called, in our conversations, the "appropriation" of culture (that is, of communist morality). Some of these problems have been neglected in America, but, under the heading of "socialization," many of them have been intensely studied. The chief difference is that Soviet psychologists are largely engaged in what Lewin termed "action research." They have suitably-defined conceptions in their heads of the different components of an ideally-integrated and creative product of the entire educational (family, school, and Pioneer) system, and their experiments are designed

to reveal what measures are most conducive to this end. We were frequently told that the aims and goals of Soviet education were "settled." The many problems of student motivation, of individual differences in scholastic performance, methods of presenting subject matter, etc. are considered within a "fixed" framework. At the core of their ideal man is a persistent disposition to devote his energies, in collaboration with others, to the cause of Russian socialism, rather than to his own private cause, to an independently selected cause, or to the whole world's cause. They are more concerned with synthesizing what is "right," in their scales, than in analyzing what is "wrong."

5. That, since all theories, especially in the "behavioral sciences," are inevitably based, explicitly or implicitly, on some form of social ideology, or prejudice, Soviet psychologists must be wary of every theory or mode of research that has originated in a bourgeois country. Competent theorists must find the taint in each of them and expose it, so that the body of Soviet psychologists may be warned away from this impurity on fear of contamination at their mental roots. One result of so much dread of Western thinking has been the repudiation by our colleagues in the USSR of almost all advances of the science of psychology in Europe and America since its first vigorous forward movements some 30 years ago. Not only Watsonian behaviorism and all shades of psychoanalysis are taboo, but numerous other theories and practices. Soviet psychologists have kept away from Gestalt psychology, intelligence and aptitude tests, personality theory, questionnaires and projective tests, individual case studies, studies of small groups and of social movements, almost everything that is embraced by our social psychology and sociology (which is assigned by them to the Institute of History), system-of-systems theory, experimental design and the use of controls, model making, and the statistical treatment of data. The only exception we encountered was enthusiasm in some quarters for cybernetics and information theory.

#### SOME EXAMPLES OF CURRENT INVESTIGATIONS

Our grouping of the various projects cited as illustrations of psychological research in the Soviet Union is necessarily arbitrary with categories overlapping.

#### *Experimental Studies of Higher Nervous Processes*

1. Investigations of the "orienting reflex" as the unspecific component of unconditioned and conditioned reflexes and as the basis of perception. The "orienting reflex," as named by Pavlov, is interpreted as the response to novelty—the "what-is-this" reflex. It is ingeniously isolated and detected by means of plethys-

mographic records comparing the flow of blood in the forehead and in the finger: the orienting reflex is operating when there is vascular constriction in the finger and dilation in the forehead.

2. Investigations of the different qualities, capacities, or dimensions of excitative and inhibitive higher nervous processes as manifested by the establishment and extinction of different kinds of conditioned reflexes. As discriminated by Pavlov, the chief qualities of these higher nervous processes are strength, mobility, and equilibrium.

3. Investigations of individual and age differences in the degrees of these different qualities of the nervous system, the search for new qualities, and attempts to define people in terms of different combinations of these variables, much as Pavlov did in accordance with Galen's four temperaments: the sanguine, melancholy, choleric, and phlegmatic.

4. Investigations of nervous processes using these same methods in abnormal conditions, such as brain injuries, epilepsy, oligophrenia, schizophrenia, etc.

5. Investigations concerned with the number of reinforcements required to produce conditioned responses in fish, birds, rabbits, apes. It appears that five to ten reinforcements are sufficient in all species provided the organism has lived for some time in the experimental environment.

6. Studies of subliminal higher nervous processes under both normal and abnormal conditions, detecting feedback on the unconscious level.

7. Studies of the effects of certain drugs on higher nervous processes.

8. Studies in the discrimination of specific defects, mostly brain defects, which impede the normal development of some mental function, such as speech.

9. Investigations concerned with capillary development in the brain before and shortly after birth, and with the sensitivity of this growth to both physical and chemical injury. Studies of intra-uterine development, for example, showing the vestibular sensitivity of the embryo to its own heartbeat.

10. Studies of the neurological development of infants as this relates to perception and behavior. For example, the finding that both the perception of speech and the capacity to discriminate pitch occur about the same time (seven months) in the infant and are presumably interdependent.

The stimulus or signal in these experiments may be visual, kinaesthetic, or auditory, the sound of a word or the meaning of a word. In most studies, a number of different physiological processes (higher central nervous processes or their peripheral manifestations) are synchronously measured and recorded by the use of an electroencephalogram (with multiple leads), electro-myogram, electrocardiogram, recorder of electrical skin

conductance, and a plethysmograph attached to forehead and finger.

#### *Studies of Voluntary Activity, Work Operations, Productivity*

1. Investigations of the development in children of the "directive role of speech": the capacity to learn and to perform definite acts as directed by the experimenter, first by means of overt self-direction and then covert self-direction (for example, the "appropriation" or interiorization of social demands and social norms).

2. Investigations of motor acts in the performance of tasks. Units of work are analyzed into subunits, into basic and auxiliary operations. Component abilities are then discriminated and the interdependence of such variables as speed and rhythm in the performance of a work unit is studied in detail—for example, stressing speed disrupts rhythm. The consequences of special attention by a worker to the movements he makes—the method or means he uses to accomplish a task—are compared to the consequences of his special attention to the effect, the product, or the end result to be achieved. Studies of creative work, of efficiency and fatigue, in industry and agriculture: the safety and intrinsic interest of the work.

3. Investigations concerning the development of the best attitudes toward work in preschool and school children: how to implant the desire to do better work and the habit of doing more perfect work, how to develop the ability to plan an enterprise and to direct and control its execution. An individual will do his best work only if the job at hand seems important and worthwhile, and the psychologist's role is to help an individual try to make every aspect of the work meaningful. Examples of motives given us were: the realization of one's social obligation, the wish for knowledge, the desire to obtain a functional position in a certain group, wanting to win a prize, etc.

In many of the developmental studies, reliance is placed chiefly on what is called the "natural experiment" or what we would term observation of behavior in various types of everyday life situations.

#### *Studies of Higher Mental Processes*

1. Investigations into the mental processes, the "mechanics" involved in thinking and problem solving (as differentiated from the "results" of thinking).

2. Investigations of "set" (chiefly central, perceptual set), carrying on the work of Uznadze of Tbilisi, with demonstrations of the transfer effect of set from one modality to another. The idea was advanced of representing the personality-at-the-moment in terms of the "set" resulting from the organism's interacting with the specific environmental situation—"set" being viewed as

an intermediary between the environment and the needs of the organism. The concept of "set" is not extended into social psychology.

3. Experiments in concept formation and mental development, following the work of Vigotski.

4. Investigations concerned with concept formation and the "nearness" of concepts as measured physiologically: their semantic equivalence or proximity, with words being grouped into those that are "nuclear," "peripheral," and "neutral."

5. Studies of the laryngeal, lingual, and labial processes of vocal and subvocal speech under normal and abnormal conditions by means of motion picture X-rays. The view was expressed that thinking may be two-thirds speech movements, mostly subvocal.

6. Investigations into the acquisition of special kinds of knowledge and skills, for example, learning arithmetic.

7. Studies of functional improvements in deaf, dumb, and blind children especially by means of mechanical aids, such as an instrument which translates print into sound patterns for the blind.

8. Investigations of learning in young chimpanzees compared to learning in human children, as well as other studies indicating, among other things, that chimpanzees are relatively weak in their ability to synthesize.

In all these experiments the highest standards of situational control and of precise recordings were exemplified. Generally speaking, the instruments were as good as or better than anything we had seen in our own country within the domains of research to which Soviet psychologists have confined their efforts.

#### CONCLUDING NOTE

Wherever we went we found dedicated Soviet psychologists fully set to tell us about what they had last

done, were then doing, and were planning to do next. They were more intent on reporting their performances in research than in debating their theories and hypotheses. Except for an occasional, itinerant foreigner, no inquisitive and appreciative audience with concerns similar to their own had as yet faced them across the table, while everyone munched the proffered apples, sweets, and cookies. At the end of our visit it became apparent that they, as well as we, were keen to have about a dozen of their more important recent books translated into English and published in America and, contrariwise, to have more American books translated into Russian. Several of them spoke of their eagerness and readiness to go to the United States as visitors or as lecturers. We trust this can be arranged, for the sake of our shared interests and, more generally, for the sake of better international relations. Although we can scarcely hope to equal their tireless hospitality to Americans in the USSR, when they do come, we might see what we can do.

#### REFERENCES

- BAUER, R. A. *The new man in Soviet psychology*. Cambridge: Harvard Univer. Press, 1952.
- BRAZIER, M. A. B. (Ed.). *The central nervous system and behavior*. New York: Josiah Macy, Jr. Foundation, 1959.
- LONDON, I. D. Psychology in the USSR. *Amer. J. Psychol.*, 1951, **64**, 422-428.
- MINTZ, A. Recent developments in psychology in the USSR. *Annu. Rev. Psychol.*, 1958, **9**, 453-504.
- RAZRAN, G. Recent Russian psychology: 1950-1956. *Contemp. Psychol.*, 1957, **2**, 93-101.
- RAZRAN, G. Psychology in communist countries other than the USSR. *Amer. Psychologist*, 1958, **13**, 177-178.
- SIMON, B. (Ed.). *Psychology in the Soviet Union*. Stanford, Calif.: Stanford Univer. Press, 1957.
- VENABLE, V. *Human nature: The Marxian view*. New York: Knopf, 1945.

## SOME NOTES ON EDUCATION AND PSYCHOLOGY IN THE SOVIET UNION

HENRY CHAUNCEY

*Educational Testing Service*

THIS report on education and psychology in the Soviet Union is based on my visit to Russia in 1958 as a member of a team of American educators whose special interest was in Russian elementary and secondary education. It results from our observations of schools, discussions with educators, and interviews with several Russian psychologists; but it is by no means a systematic study of the field of psy-

chology. Nevertheless, our survey of education in Russia does provide a basis for some limited generalizations about the psychological climate in the Soviet Union.

The most striking fact about Soviet elementary and secondary education from the viewpoint of psychological theory is its almost complete lack of regard for individual differences. While Soviet psychologists do

not deny the existence of individual differences, and are in fact studying them, they do argue that such differences as exist are to be overcome or eliminated rather than capitalized on.

On many occasions when I discussed educational tests with Russian educators, they would start by disparaging the concept of IQ. To them this concept represented a psychological and educational philosophy under which an individual's heredity placed a ceiling on his future development. This they deny vigorously, insisting that environmental influences far outweigh those of heredity. My efforts to redefine what is measured by tests and to explain what we meant by "developed ability" met with little success because the Russians are convinced that we are committed to heredity as the determining factor, while they are champions of environmental influences.

The application of this extreme environmental viewpoint in education may be seen on every side—in small things as well as in the larger policy decisions. For example, several educators told me with some pride that there are practically no left-handed children in the Soviet Union. The Russians say that a child can get along better and easier in a world where most activities are geared to right-handed people if he uses his right hand. So the schools insist that every child learn to favor his right hand, regardless of his natural inclination.

In similar fashion, Soviet leaders have decreed that all students—except perhaps the 1% who are defective—must take the rigorous academic program through the tenth grade. Every educational official with whom I talked assured me that 99% of the students who entered the ten-year school *were capable* of completing the academic program successfully.

I found it hard to believe that they could be serious, because from our own experience it certainly seemed like an extravagant claim. In this country, we assume that only 30% or 40% of our high school students can satisfactorily complete a rigorous college preparatory program and perhaps only half as many with profit to themselves.

In an effort to check on this point, I did my best to find out from school officials in each community that we visited what proportion of those undertaking the ten-year program actually finished it successfully. The answer was always the same: "Virtually everyone completes the program." They claimed that those who leave the regular ten-year schools to enter a technicum or to work in a factory are just as able as those who continued in the ten-year school. In the technicum the same general education program is taught along with the technical training. Those who go to work usually continue their studies at "schools for working youth" or by correspondence. By piecing together in-

formation from various sources, I believe that it is reasonable to conclude that 50% to 80% of those who enter the academic program manage to complete it.

How do they manage to accomplish this formidable feat? The explanation, I believe, can be found in the motivation of both the student and the teacher. The student knows that in Soviet society there is a direct relationship between educational level and one's future economic and social status. In fact, students can estimate what their income will be ten years hence on the basis of how far they go in school and what fields they enter. This knowledge seems to motivate students to put forth their best efforts, even when they realize that only one in three will be able to go to an institution of higher learning.

The importance attached to education by the government serves as a further spur. Youngsters are told that the nation's welfare demands a large reservoir of trained people so that the number of specialists in any field (such as engineering or metallurgy) can be doubled or tripled in a very short time should the need arise.

The factor of teacher motivation is another basic reason why Russian schools have been able to achieve rather spectacular results. The assumption that all individuals are capable of mastering the academic program places responsibility for satisfactory learning squarely on the shoulders of the teacher. It is her job to see to it that all students learn at least the minimum essentials of each subject.

Teachers in the Soviet Union are well paid, well trained, and highly regarded in the community. They take their work very seriously and seem to be constantly searching for better ways of teaching the essentials of each course. Teachers get one day off each week (out of the six school days), and they are expected to devote it to study and self-improvement. They frequently use this time for consultation with subject matter and method specialists to learn new ways to get difficult points across to their students. They also spend considerable time after school working with students on an individual basis to get them through their course.

Thus by concentrating on a more limited set of objectives than we do, by developing special skill at getting important points across, and by providing tutorial help where needed, the Russians seem to be able to get a higher proportion of students through the academic program than we do. Soviet psychologists work closely with educators in devising methods by which students, regardless of ability level, may be trained to meet the needs of the state.

#### ACADEMY OF PEDAGOGICAL SCIENCES

Perhaps the most important organization working in the field of education and psychology is the Academy

of Pedagogical Sciences in Moscow. This institution has no counterpart in the United States. There are a total of 550 research workers at the various institutes which comprise the academy. These scholars devote themselves exclusively to the study and improvement of Soviet education. The major fields of interest are:

1. Theory and history of pedagogy (including comparative education)
2. Methods of education
3. Psychology
4. Esthetic education
5. Defectology (handicapped children of all types, including the mentally retarded, the deaf, the blind, and those with speech defects)
6. Education of children of the more than 50 different other nationalities in the Soviet Union
7. Physical education and school hygiene

The two institutes which interested me the most were the Institute of Methods and the Institute of Psychology. The former is responsible for developing textbooks, films, visual aids, and the like. Its staff conducts a vigorous experimental and developmental program to provide schools with the best and most up-to-date educational materials. These are carefully reviewed by teachers and by subject matter specialists (including the leading professors at the universities). All materials are carefully pretested in a group of representative schools and revised, as necessary, to make them as effective as possible.

The Institute of Psychology, which I assume will be of special interest to readers of this journal, consists of three main departments: General Psychology, Child Psychology, and Pedagogical Psychology. There is also a small section concerned with the history of psychology in the Soviet Union. The scholars in this section are about to publish the first volume of what is to be a monumental work on Soviet psychology. The first volume will cover Russian psychology from the eleventh through the sixteenth century!

The Institute of Psychology is directed by Anatoli A. Smirnov, who is also a Vice-President of the Academy of Pedagogical Sciences and a Deputy to the Russian Supreme Soviet, which is the legislature of the Russian Republic. Smirnov is a specialist in child psychology and has for many years been a member of the editorial board of *Soviet Pedagogy*. He was named Director of the Institute of Psychology in 1954. Smirnov described in considerable detail the work of the various laboratories in each of the major departments.

The Department of General Psychology is divided into six laboratories. The first laboratory deals with "higher neurodynamics." Its work is on the borderline between psychology and physiology and stems from Pavlov's theo-

ries. Among other things, its staff is studying the physiological mechanisms of certain psychological processes, also some of the mental processes that we might call skills.

The second laboratory is also involved in physiological work, with emphasis on a study of differences in higher mental processes in relation to different "typologies." Tipilov, who is in charge of this laboratory, reported on his work at the International Congress of Psychology, held in Montreal. At my request, Smirnov explained briefly that, according to Pavlov's theories, typology is determined by three main characteristics: the weakness or strength of the neuro process, inhibition or excitation, and mobility. There are four typical combinations which are believed to be associated with four types of character. Since Pavlov's work was done with animals, the task of the laboratory is to find out whether the theories are applicable to people and to work out the details.

The third laboratory is the Laboratory of Thinking and Speech. Here too there are physiological influences. For example, in studying the relationship between speech and the thinking processes a special apparatus has been devised to take X-rays on movie film. This enables them to see how the Adam's apple and other parts of the vocal apparatus move around when different sounds are made. Modern electronic equipment is also used in studying the movement of the speaking apparatus during the thinking process. Smirnov mentioned two other studies being carried out in this laboratory. One applied information theory to the thinking process; the other sought to determine how generalizations develop from early childhood through adulthood.

The fourth laboratory is concerned with perception. The staff is studying the peculiarities in different processes of perception under different conditions in relation to particular tasks. For example, how does a person happen not to notice something and on what does noticing or not noticing depend? In these studies, they believe that a process of inhibition is at work.

The fifth laboratory is concerned with abilities: mathematical abilities, literary abilities, technical abilities, and pedagogical abilities. The task of the laboratory is to study the determinants of success in a particular field. Smirnov described a typical study in the field of mathematics. Two extreme groups are selected on the basis of teacher judgments. One consists of those considered talented in mathematics, the other of students lacking in this talent. The students are given a variety of tasks in an effort to determine characteristics which differentiate the groups. The students may, for example, be given a new principle that can be applied to a set of problems. In this way they can get at the importance of being able to apply generalizations.

During this discussion I took the opportunity to ask: "Do students differ widely in mathematical ability?" Smirnov's response was: "In algebra there are big differences." I then observed that, since the schools had a standard program, it seemed to me that there were probably many students who would have difficulty in coping with algebra and other academic courses. He replied: "Within the program of the secondary school, except for handicapped

pupils who study at special schools, all students can handle mathematics. The task of psychology is to work out better methods. We are trying to find ways to lessen differences so as to make more students like the best. We don't expect all students to be mathematicians, but algebra helps the general development of the person." In this connection he expressed the belief that good teaching can improve the student's ability to do abstract thinking.

Returning to his description of the Department of General Psychology, Smirnov said that the sixth laboratory was concerned with adult workers in various industries. Both the worker and the machine are studied in an attempt to "rationalize work." One problem they have is the struggle against monotony. Through psychological studies they are trying to find the most effective ways of varying the job to reduce monotony.

This laboratory also studies the educational process in technical schools. They are seeking not only the most effective methods of presentation and the optimal sequence of instruction and practice, but are also trying to determine toward which aspects of the learning task the student's attention should be directed: toward some element in the process, the process as a whole, or the result of the process.

In the Department of Child Psychology there are two laboratories: one is concerned with preschool children, the other with students of school age. The programs of research are similar. At each level, they study memory, perception, thinking, emotion, and will. They also study activities such as learning the alphabet or the contribution of games to the preschool child's development.

The third department deals with pedagogical psychology. Special emphasis is given to the psychology of learning and the psychology of moral education. School subjects under investigation include arithmetic, physics, geometry, the Russian language, grammar, spelling, history, biology, geography, and foreign languages.

The Institute of Psychology is nearly 50 years old. It was opened in 1912, and Smirnov himself entered as a student that year. At the time, it was part of the University of Moscow, but in the past 14 years it has been in the Academy of Pedagogical Sciences.

#### UNIVERSITY OF MOSCOW PSYCHOLOGY DEPARTMENT

In addition to the Institute of Psychology, I was able to visit the Psychology Department at the University of Moscow. There are only about 100 students at the University of Moscow studying psychology as compared with 3,000 studying physics. These proportions were identical with those I had noted at the University of Leningrad, where there were 50 students in psychology and 1,500 in physics.

When I inquired about the relatively small number of students in this field, I was informed that many students study psychology at the pedagogical institutes. The study of psychology at the university is intended to prepare students to work as research scientists, although some of them do go into education.

In the absence of Leontief, the head of the Psychology Department, I met with Zaporozhez, his second in command; the latter very graciously told me about some of the interesting things they are doing in the department. Leontief, for example, is studying the development of abilities. He has been trying especially to determine the structure or composition of musical ability. One of his hypotheses is that European languages require a child to pay attention to timbre, rather than to pitch. The ability to distinguish between notes—what we call pitch—is therefore often not developed in some children, while in others it is developed intensively. It is this difference in pitch discrimination—a learned ability—which presumably makes some children more musical than others. Leontief has concluded that, while there is a potentiality for music that is inherited, the important thing is training.

While at the University of Moscow, I also had an opportunity to meet with A. R. Luria who seemed to be more interested in testing and differential psychology than anyone else I met in the USSR. He has conducted studies of mental abilities of fraternal and identical twins, using tests of rote memory and also of indirect memory (we would call it associative memory). His findings suggest to him that, of these two types of memory, the latter is more important in everyday life and it is largely determined by environmental factors. Studies of IQs of children and their parents indicate that the correlation decreases as the age of the children increased. From this and other evidence he infers that the nature of the thinking process changes with age and that environmentally controlled factors play an increasingly important role.

Luria is also interested in diagnostic testing. He described a method for determining which individuals who score low on a test may show "promise." Each person is given some help as he takes the same test a second time. If he can raise his score, with help, this is considered significant. The individual then takes a slightly different test without any help. Those who can maintain their improvement—that is, do as well as they did the second time—are only temporarily retarded. Those who slip back to their original level are thought to show little "promise" as far as independent learning is concerned. I inquired as to how he standardized the teaching that went on during the second phase, but I never got a satisfactory answer.

#### APTITUDE AND ACHIEVEMENT TESTING

Because of my special interest in measurement, I tried to learn as much as possible about aptitude and achievement testing in the Soviet Union. As I have already indicated, the concept of aptitude testing is repugnant to the Russians for ideological reasons. The

use of such tests, they say, suggests determinism on grounds of heredity. The use of aptitude tests as they conceive of them would be contrary to their belief and not warranted by the "scientific" evidence they have assembled.

Objective tests were used in Russia before 1934. Their use coincided, unfortunately, with the period during which progressive education was in vogue. When Russia's leaders decided to abolish progressive education, they threw out all objective tests as well. Today, there are no objective tests used in Russia, except in a few instances in psychological laboratories. Tests are not used for identification, guidance, or placement of individuals as they are in this country.

The main use of examinations in Russia is to audit achievement. Principal reliance is placed on oral examinations of a rather special type and to some extent on written examinations. The purpose of these exams seems to be limited to assuring that the essential elements of the important courses have been completely mastered.

Examinations prepared by the Ministry of Education used to be given at the end of each grade, but gradually this program has been reduced until at the present time examinations are given only at the end of the seventh grade and at the end of the tenth grade. There are also examinations for admission to the university and the institutes. They are quite similar to, though more demanding than, the examinations given at the end of the tenth grade.

At the end of the seventh grade, all students take a written examination and an oral examination in Russian and a written examination in algebra. At the end of the tenth grade, there are written examinations in Russian literature and composition and oral examinations in mathematics, physics, chemistry, and Soviet history.

The unusual features of the Russian examinations can perhaps best be explained by describing one oral and one written examination.

For the tenth-grade oral examination in solid geometry, for example, a class of 30 is divided into two sections of 15 each. All 15 students go into a classroom where the teacher of the class, the director of the school, one or two other teachers, and sometimes representatives of the educational authorities of the city sit as an examining board.

On the table, at which the board sits, are 20 to 25 "tickets," each of which contains three questions. Two of them are rather standard proofs or problems, and the third a problem that, while not new in type, is perhaps a little different from the problems that have been assigned during the year. All three questions are concerned with a particular topic, and each of the 20 to 25 tickets covers a different topic. Students therefore have to be sure that they have covered all the topics, since they can never tell in advance which questions they may be called upon to

answer. Fortunately, for them, the Ministry of Education publishes a pamphlet several months before the examinations in which the topics to be covered are listed, and in some instances the first two questions are specifically stated. Only the third problem or question remains in doubt.

At the beginning of the examination four or five students select their "tickets." Then they return to their desks and work out the answers. When the first student is prepared, he goes to the blackboard and writes out his answers on the blackboard. He then explains his answers to the examiners and responds to any questions they may have. The examiners may ask questions about any aspect of the course, but I gather that this privilege is not exercised to any great extent. Meanwhile, of course, Students 2, 3, and 4 have had considerable time to prepare their answers; but at the same time they have had a good deal of distraction. Students 13, 14, and 15 have to sit through a long morning of waiting until their turns come up.

It is evident from their examination system that the Russians focus attention on the mastery of important topics to a much greater extent than we do in this country. On the other hand, there is far less incentive to study more than the minimum essentials. The examinations are primarily a motivating device. They provide a goal toward which the student strives. In the schools we visited, it was rare to find that any student had failed his examinations the previous year. Teachers may prevent students from taking the examinations if they have had a low average during the year, but as far as we could ascertain only one or two students in a class of 30 would be prevented from taking the examinations.

On written examinations all students are presented with the same questions. Each student must answer only one out of three questions. The topics tend to be very general. Students write an essay of not more than about eight blue-book pages. Surprisingly enough, they have six hours in which to do this. The examination in Russian literature, which I observed, began at 9 o'clock in the morning and continued until 3 P.M. It was customary, and perhaps even mandatory, for each student to write a first draft and then, having worked it over very carefully, copy it before the end of the examination. Our own experience with essay examinations would lead us to question the time limits set for the examination, and the reliability of an examination involving only a single question. However, the Russians' objective seems merely to determine whether students have met a certain minimum standard of literary interpretation and writing.

The growing interest in cultural exchange and comparative education may some day make possible the administration of suitable tests, both in this country and in Russia, to groups whose preparation has been comparable. It would be particularly illuminating to see if there are significant differences in the performance of American and Russian students, and, if so, how

they differ. On the basis of present knowledge one might hazard the guess that in cumulative subjects such as mathematics, foreign language, and the sciences the Russian students will have a better command of minimum essentials, whereas American students will have a broader view of the subject and perhaps somewhat more flexibility in applying the knowledge they have gained in a variety of situations.

Most of the Russian psychologists with whom I talked seemed interested in the exchange of books, tests, and other published materials with American psychologists. They are already receiving most of the journals published by the American Psychological Asso-

ciation, but they are anxious to have more psychological books from the United States.

On the surface there appears to be a wide gulf between Russian and American psychology—wider than one would expect merely on the basis of lack of communication between psychologists in the two countries. Russian psychology seems to have its goals fairly well circumscribed by communist doctrine, by the Soviet attitude toward heredity, and its resulting concept of the individual. Yet, despite these important differences in attitude, it seems to me that American psychologists ought to make an effort to learn more about what Soviet psychologists are doing and to relate relevant findings to their own work.

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## Psychology in the News

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### *Social Psychology; "Live from Washington" . . .*

George Lincoln Rockwell, who might be described as the John Kasper of the District of Columbia, was invited by a psychologist to speak at George Washington University; in fact, Rockwell was asked to outline his philosophy (which is Nazi and anti-Semitic). The speaker was under indictment at the time (for disorderly conduct), but Curtis E. Tuthill invited him to speak to social psychology students.

We were surprised that the *Washington Post* considered such an idea out of psychology to be news. Have psychology classes tamed down since the days when characters ran through chasing each other with revolvers, the ostensible purpose being to teach us that different persons remembered different things about scenes and actions? Unforgettable was our professor's pitiless wittiness about the witlessness of eyewitnesses.

But, of course, that is easy to remember. What else is memorable? Who else in 1959 is bringing real life into psychology classes?

### *Students Cry for It . . .*

A certain "old time academic psychologist" sends some changing culture notes from the campus newspaper of Oberlin College. Other OTA psychologists may be startled, as he was, to realize how times have changed, when they see these students cry for psi . . . and get it, by and by.

Here are the notes from the *Oberlin Review*:

February 20: Results of the recent survey indicate that 82 per cent of the student body feels that the College needs the services of a full-time clinical psychologist and that 48 per cent feel they have problems requiring his services.

March 10: COUNCIL RECOMMENDS CLINICAL PSYCHOLOGIST. The Student Council of Oberlin College would like to express its unanimous approval of the proposal to have a clinical psychologist visit the College one day each week for consultation by students, and its approval of a \$2.00 increase in the Student Health Fee to cover the cost of such counseling . . . . We feel that the need for personal counseling is too great to be completely answered by this proposed addition. The faculty proposal, however, is a significant first step toward alleviating one of the most pressing needs of the Oberlin campus.

March 13: FACULTY OKAYS HIRING CLINICAL PSYCHOLOGIST. Last Tuesday, the General Faculty approved a report designed to help meet the need for a clinical psychologist on the campus. . . . The need for such additional counseling has been urged upon the faculty for some years . . . .

### *Space Aide? . . .*

The Associated Press sent all over the country a photograph of an attractive girl, and this caption:

ASTRONAUTS' AIDE? A research firm has nominated Pamela Jayson, of Beverly Hills, to be the stewardess on first manned space flight. A registered nurse and a mother, Mrs. Jayson holds a master's degree in psychology.

To save you the trouble, we looked her up in the *APA Directory*. The answer is no she is not—that is a fact. No, she is not likely to be in space, either—that is a prediction. But yes, like the editors of the AP, we think she is pretty—that is a sheer value judgment.

### *Name Calling Contest . . .*

Quail and bathing beauties come in bevvies, and lions come in prides, and someone at ETS sent us a curious item about a jam of tarts. But the question has been asked: What do or should psychologists come in? Nominations as to what should be the collective noun to refer to a clot of psychologists have been drifting through the mails to APA:

Edwin S. Schneidman gives a California vote for *ganglion*.

Arthur W. Krauser writes from the University of Rochester: "Inasmuch as your recent appeal did not request box-tops, include the phrase 'twenty-five words or less,' or appear to be serious, I have decided to respond to it. I submit that psychologists come in *complexes*."

From Arthur Lichtenstein in Baltimore comes one with teeth and truth in it: "It seems obvious to me that you would have a *cycle* of psychologists."

We will keep the contest open for one more month, to accommodate feedback to the feedback, so mail your entries before midnight of any day. Employees of the American Psychiatric Association are eligible, neatness does not count, and the judges have practically decided anyway.

If *psi* logic is so cyclical, then *cycle* is so logical.

—MICHAEL AMRINE

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## Psychology in the States

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### All Mimsy Were the Borogoves

Maybe there really is no equivalent of jabberwocky in psychologese. But if the number of times the APA telephone number gets dialed by District of Columbia residents is any index, people are trying to "read" us (if not "dig" us). And psychology—whether spelled backwards or not—is beginning to mean more than couch, complex, and conscience.

Now we would submit that there are some good omens arising out of a "log" kept at one telephone extension of the APA Central Office for several months. Granted, the telephone callers were self-selected, the switchboard operator had her own criteria for placing calls on the particular extension, and here and there a call may have failed to get itself entered in the log. Still, the first 100 calls suggest we might sometime test the hypothesis that there is no significant difference between what the public looks to us for now as compared with a decade ago.

*If a Psychologist Answers, Don't Hang Up.* We could hardly conclude that the community has ceased to see us as solvers of personal problems. Roughly one third of the phone calls deal either directly with requests for referral (for the caller; almost as often for another) or else with aspects of referral (checking on the competence and/or legitimacy of a particular practitioner). On the other hand—and this seems a gratifying switch—fully half the callers seek information which goes quite beyond the mental health area. True, the community still finds it hard to ask "good" questions (much as do psychologists themselves, if we are to judge by the months of planning which go into preparing the agenda for any major conference). Thus, the telephone caller is likely to be seeking the psychological term for fear of high places or the "basic needs of man." Frequent inquiries about hypnosis reflect perhaps too the presence of as much morbid interest as scientific curiosity. But among the approximately 50 calls in our 100, questions run the gamut from learning, memory, study habits, and educational toys through psychological testing, educational films, and market research to problems of aging, studies of cooperative housing projects, and research on space travel.

For that matter, neither students of psychology nor psychologists themselves know all the answers (if, indeed, the Central Office does). They constitute the remaining one-sixth of our telephonic teleologists (as our addiction to alliteration would have it). In their case, of course, the concern is less with what psychology is, more with how the good psychologist should behave in any number of ambiguous situations (some of them with few if any precedents).

... *Doctor, Lawyer, Indian Chief.* Our sample of callers contains laymen as the largest single category. On the other hand, it also numbers physicians and attorneys, writers and publishers, clergymen and embassy officials, representatives of government, private agencies, and educational associations, and even our friends in the American Psychiatric Association.

*Q.E.D.* We reserve the right to introduce some selective perception in drawing a moral out of the whole affair. It is this. Given a broader acquaintance with what psychology—all of psychology—is and does, the community—all of the community—will begin to ask of us questions we will rather enjoy answering. Given state associations which represent psychology—all of psychology—the millennium will come sooner rather than later.

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**Standing Up and Being Counted.** No one has been commissioned to come up with samples of behavior which would conveniently bear on the above. But we are happy to report two recent events which might almost be custom tailored examples. They represent a nice case of interstate collaboration to boot.

The State of New Jersey has a Commission on Mental Health as well as a Commission on Subliminal Projection. During the first week of April, psychologists had opportunity to testify before both. The New Jersey Psychological Association rose to the occasion, while Israel Goldiamond of Southern Illinois University lent his talents from afar.

The Commission on Mental Health listened to a statement read by Maurice G. Kott, President of the New Jersey Psychological Association, and pre-

pared in collaboration with Edward Joseph Shoben, Jr., Marvin Metsky, and Joseph J. Parnicky. Dealing with the general issue of criminal responsibility, while touching on such aspects as the legal status of the mentally deficient, statutes concerning suicide, and matters of expert testimony, the statement concluded:

The fundamental ideas here are three. In the first place, the notion of "substantial capacity" is opposed to an all-or-none concept of mental illness or defect and requires a determination of the *extent* to which the abnormal condition entered in to the commission of the alleged criminal act. Second, the concept of appreciating the wrongfulness of a criminal act seems psychologically more meaningful than the mere ability to verbalize "knowledge" of the moral or legal character of the behavior. It is more relevant to the proper requirements of society in both protecting and prosecuting alleged offenders. Finally, the stress upon self-control, which has no necessary connection with the doctrine of the "irresistible impulse," concentrates attention upon the extent to which the abnormal condition actually interfered with the individual's capacity to observe the regulations of society.

Meanwhile, the Commission on Subliminal Projection received from our Illinois colleague a communication summarizing the status of subliminal projection as it concerns advertising especially. Goldiamond confessed to an inability to get alarmed, outlining the kinds of misconceptions which have contributed to the public concern about becoming unwilling pawns in somebody's game. Keeping his communication scientifically respectable yet sufficiently dejargonized to be understood by the intelligent layman, he pointed out some essential differences between controlling the behavior of Pavlov's meat eating dog and that of America's Coca Cola drinking citizens. The pupillary reflex might readily lend itself to some manipulation. But, subliminal messages to the contrary notwithstanding, one would still retain the ability to do as one chose in such matters as voting for the Governor of New Jersey, he assured the legislators.

At this stage, Goldiamond asserted, we have reason to question not so much the ethics of the process as its very effectiveness. His conclusion: "... the impact of subliminal projection upon us may be as faint as the images it presents."

In public services such as these, where does the scientific contribution leave off and the professional begin, or vice versa? We confess we cannot quite tell. And maybe this is good.

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**The Board of Professional Affairs.** All of this seems to lead fairly naturally to an account of the recent meeting of BPA. Here, too, the intent was not to fractionate the problems of psychology into a block which is distinctively "professional" but rather to reckon with the complex of activities in which various APA committees and the state associations are engaged. The Board of Scientific Affairs, for its part, is similarly occupied. Purpose of both boards: to break ground for the Board of Directors and the Council of Representatives.

**Committees.** In reviewing the progress, problems, and plans of its committees, BPA manages to survey a fair chunk of the psychological landscape. The assignments range from academic freedom through mental health and into the province of the retired psychologist. They have their scientific aspects too, as attested by such features, among others, as: the presence of a Committee on Scientific and Professional Responsibility, the retitling (and hence refocusing) of the Committee on Mental Health Programs to read "Committee on Mental Health Research and Programs," the designation of representatives to the newly constituted APHA Committee on Public Health and the Behavioral Sciences.

The overview is not without its revelations. It becomes increasingly clearer, for example, that the several committees on "relations with" other fields face some inevitable frustration. Such sprawling domains as education and religion, for instance, are not easily got hold of, let alone related to. The same may be said for other somewhat global entities, medicine among them. For the moment at least, BPA saw such alternatives as: relating to the professional organization itself (rather than its discipline), relating around somewhat more circumscribed issues and themes, relating via specially constituted task forces rather than committees as such.

During its discussion of relationships with one group—our colleagues in sociology—the board was privileged to have present Talcott Parsons. If our differences do not get immediately resolved, it will not be for lack of good faith on both sides but rather because of the peskiness of the issues themselves. At any rate, the problems will be further pursued by the Committee on Legislation.

BPA has recommended, incidentally, that the latter be made a standing committee, along with the Committee on State Examination Procedures and the Committee on Organization and Functioning of

State Associations. COFSA, as the latter is less tongue trippingly called, has scheduled the following series of workshops at the Annual Convention:

Problems and Responsibilities of Psychologists in the Use of Mass Media of Communication (co-sponsored with the APA Committee on Public Information)

Collaboration between State Associations, ABEPP, and ABPS

Relations between Psychology and Psychiatry at the State Level

Recent Developments in Legislation

State Examining Procedures

Meeting of Officers of State Associations: The State Association To-day

BPA reviewed, also, two reports which will provide a basis for APA policy in the area of mental health as well as in the field of independent private practice. Nominations for board and committee vacancies completed this area of business.

*State Associations.* Here BPA made a number of recommendations in concert with the APA Policy and Planning Board. Involved were such matters as: a rotation plan for the recently elected state representatives to Council; provision for the election of future state representatives to Council; discontinuation, at least for the present, of financial assessments on state associations; national-state relations in the processing and adjudication of ethics cases.

*Issues.* As you read this (and we hope you do), the matter of coverage for psychological services rendered under health insurance plans is being vigorously discussed by a joint committee of psychologists and insurance folks. This is one of the issues BPA has been and will be pursuing. In like manner, the status of psychologists and psychological programs in the Air Force continues to be followed up. So too our relations with the American Psychiatric Association whose representatives are, in fact, sitting with ours somewhere in Chicago at the very moment this is being written.

Hopefully, BPA will find it possible to pull all kinds of loose ends together at its next meeting in Cincinnati during the convention.

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**White House Conference.** Precious few causes seem to retain their bipartisan flavor in Washington these days. One such, happily, is the White House Conference on Children and Youth scheduled for 1960 and, as we see it, very much an opportunity for psychology and psychologists to make a contribution.

We base our judgment on the fact that state associations have managed to collaborate successfully with state departments of education in the implementation of various provisions of the National Defense Education Act. Apparently the cooperation has been welcome and the results productive.

Such consultation will be no less welcome to the groups planning at the state level for the Golden Anniversary White House Conference. The general theme falls quite within the ken of the social and behavioral scientist, while the subtopics touch upon the interests of all psychologists who can talk sensibly to matters affecting "opportunities for children and youth to realize their full potential for a creative life in freedom and dignity."

The APA Central Office has tried to smooth the way. State association presidents, now on the mailing list of the White House Conference staff, have already been sent copies of the "Topic Guide," rosters of state liaison planning groups, and other general information. More will follow as it becomes available. Meanwhile the imaginative state association will be able to make its voice heard in the land.

**The Reluctant Ones: To Wow, to Woo, or to Whom?** Graduate students in quest of a dissertation topic need look no further than the problem of why people do and do not join state associations. We have heard at least five hypotheses; you, probably more. Apparently the California State Psychological Association feels facts alone answer questions and has set out to unearth some.

Sneaking up on the theme via a peroration from Californian Neil D. Warren, the April CSPA *Newsletter* makes few bones about the strategy of its membership committee. It will follow up the faint-hearted who never quite completed the application process, court (actively) those who lend themselves to convincing, and analyze those who fall among the unregenerate.

One might say the data from the latter group may necessitate the coining of names for yet unheard complexes. But we would not.

—JOHN G. DARLEY

Chairman

Board of Professional Affairs

ERASMUS L. HOCH

Administrative Officer

State and Professional Affairs

## Notes and News

**Listing of Psychologists in American Men of Science.** Due to very large growth of science in the United States and Canada, it is becoming more and more of a problem as how to handle sciences which have extensive cross-over interest to disciplines which could well be included in either the biological and physical sciences or the social and behavioral sciences.

The Ninth Edition of *American Men of Science* appeared as three volumes: I. *Physical Sciences*, II. *Biological Sciences*, and III. *Social and Behavioral Sciences*. Although the great majority of psychologists were listed in the latter volume, a few asked to appear with the biological scientists and were included in both Volumes II and III.

The Tenth Edition of *American Men of Science* will be published with the *Biological and Physical Sciences* combined alphabetically in a four volume series with a separate alphabetical volume for the *Social and Behavioral Sciences*. This brings up the important problem as to where psychologists belong in accordance with this division. Jaques Cattell, Editor of *American Men of Science*, has suggested giving psychologists a choice of the volume in which they wish to be included. When they are in cross-over fields, reference can be made from one volume to the other. For example, the biography of a psychologist whose work overlaps the biological sciences might more appropriately belong in the biological field; those who are working in statistical or mathematical psychology might more correctly be included in the physical field.

It is the suggestion of the APA that those who have a preference for either a reference or a full biography in the *Biological and Physical Sciences* should express their wishes to the Editor immediately at the following address:

*American Men of Science*  
Arizona State University  
820 College Avenue  
Tempe, Arizona

Unless such a wish is expressed in writing, psychologists will appear in the *Social and Behavioral Sciences* volume. *All information for the A-E Biological and Physical Sciences volume should be in the hands of the Editor before July 1.* It is the

wish of the Editor of *American Men of Science*, in so far as it is economically possible, to carry out the wishes of the membership of the APA.

A thorough revision of the indexing of *Psychological Abstracts* is planned; it will not be ready for some time. Meanwhile, will users of the index (in the December issues) notify me whenever they find gaps? Do not delay; if you do not find information indexed *under what seems to you* the best caption, make a note on a postcard or 3 x 5 card and send it off. This will help us to plug immediate gaps and in developing a sound rationale.—HORACE B. ENGLISH; Department of Psychology, Ohio State University; Columbus 10, Ohio.

In the May 1959 "Psychology in the States" department of the *American Psychologist*, notice was given of amended grandfather provisions in the **New York certification law for psychologists**. The amendments were approved by the Governor. *The filing deadline is June 30, 1959*; to meet the deadline, a person need only send a "statement of intention to file" to: Bureau of Professional Licensing Services, New York State Education Department; 23 South Pearl Street; Albany 7, New York.

**Hadley Cantril**, of the Institute for International Social Research, represented the APA at the meeting of the American Academy of Political and Social Science in Philadelphia on April 10-11, 1959.

**John Hall Jones**, of Birmingham, Alabama, represented the APA at the inauguration of Leslie Stephen Wright as President of Howard College on April 21, 1959.

**Ethel M. Abernethy**, of Queens College, North Carolina, represented the APA at the inauguration of David Grier Martin as President of Davidson College on April 22, 1959.

**Stanley Spiegel**, of the Portsmouth Area Counseling and Guidance Clinic, Virginia, represented the APA at the inauguration of Walter Nathaniel Ridley as President of Elizabeth City State Teachers College on April 26, 1959.

**Florence L. Goodenough**, Professor Emeritus of the Institute of Child Development and Welfare at the University of Minnesota, died on April 4, 1959.

**Edwin Ray Guthrie**, Past President of the APA and Dean Emeritus of the University of Washington Graduate School, died on April 23, 1959.

**Carl A. Haglund**, of Apple Creek State Hospital, Canton, Ohio, died on March 7, 1959.

**Samuel Kellman**, of Harper Hospital, Detroit, Michigan, died on February 12, 1959.

**Peter Langham**, of New York City, died in 1958.

**M. Arthur Licht**, of Long Island, New York, died in February 1959.

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**Harry P. Bahrick**, of Ohio Wesleyan University, has received an award under the Fulbright Act to lecture in Ulm, Germany, at the Hochschule für Gestaltung during the 1959-60 academic year.

**Samuel L. Barres**, Personnel Director at the Boston Lying-in Hospital and Lecturer in the Evening-Extension Division of Boston University, was recently cited by the Boston Junior Chamber of Commerce as one of the outstanding young men of Greater Boston. The award is granted annually to ten young men for outstanding contributions to community and to profession.

**Beatrice H. Barrett**, of the University of Indiana Medical Center, has been appointed to the Advisory Committee on the Mentally Retarded of the Indiana State Department of Public Instruction.

**Seymour W. Beardsley** has founded the Institute for Personnel Psychology in Washington, D. C., for consultation and research on problems of personnel administration.

**Harry W. Blair**, formerly with Rohrer, Hibler and Replogle, has been appointed Assistant Director of Psychological Services for the New York State Department of Mental Hygiene. The Director is **Bernard Saper**.

**Donald Ewen Cameron**, of McGill University, is the 1959 recipient of the Samuel Rubin Award for outstanding achievements in mental health.

The Institute for Social Research at the University of Michigan has appointed **Alvin Zander** Director of the Research Center for Group Dynamics. **Dorwin Cartwright**, the former Director, has been designated Research Coordinator of the center.

**Herbert Dörken**, formerly in the Canadian Department of National Health and Welfare, is now a Consultant Psychologist in the Community Mental Health Services, Department of Public Welfare, St. Paul, Minnesota.

**Waldo Dunbar** is now in private practice in Redondo Beach, California.

**Gerald A. Ehrenreich** has resigned from the Menninger Foundation to enter the private practice of psychotherapy and psychoanalysis in Kansas City, Missouri.

For outstanding contributions to the knowledge of color in science, art, and industry, **Ralph M. Evans**, Director of the Color Technology Division at Eastman Kodak Company, has been selected to be the second recipient of the Godlove Award of the Inter-Society Color Council.

**Wilson H. Guertin**, with **Leonard Goodstein** as Consultant, has formed Cooperative Test Distributors, Knoxville, Iowa, to distribute and advertise printed test materials not available through commercial publishers.

**Mason Haire**, of the University of California, Berkeley, has been elected to the Board of Trustees of the Foundation for Research on Human Behavior.

**Molly Harrower**, of New York City, Chairman of the New State Advisory Council in Psychology, has also been appointed Professor of Research in Clinical Psychology in the Department of Psychiatry at Temple University Medical Center.

**Jesse H. Harvey** has resigned from the Columbus State Hospital to accept a position as Clinical Psychologist at Metropolitan State Hospital, Norwalk, California.

**Henry A. Imus**, formerly at the National Institute of Neurological Diseases and Blindness, has become Supervisory Psychologist in the Department of Psychology and Head of the Laboratory of Aviation Psychology at the United States Naval School of Aviation Medicine, Pensacola, Florida.

In memory of **Joyce** and **Peter Kaufmann**, a memorial fund has been initiated to serve the patients at the Veterans Administration Hospital in Downey, Illinois, where the Kaufmanns spent most

of their professional life. It seems fitting that their memory be associated with something permanent for the patients they served. Contributions to the fund may be sent to: Ludgardis Marxer; Personnel Division, VA Hospital; Downey, Illinois.

**Herbert E. Krugman**, formerly with Richardson, Bellows, Henry & Company, has joined the staff of Raymond Loewy Associates, industrial designers, as Director of Market Research.

**Harry Laurent**, formerly with the Arabian-American Oil Company, has been transferred to the Standard Oil Company (New Jersey) in New York City as Assistant Manager of Employee Relations Research.

**Jeanne McCarthy** is now serving as the qualified psychological examiner for the Niles Township Department of Special Education.

**George B. Moore**, formerly at Chicago State Hospital, has joined the staff of Daniel D. Howard Associates in Chicago.

**William A. Owens** has resigned from Iowa State College, effective 1 June, 1959, to become Professor of Industrial Psychology in the Occupational Research Center at Purdue University.

**Gertrude Rand** received the Edgar D. Tillyer Medal for 1959 in recognition of her research in the fields of color, color blindness, lighting, and ophthalmology. The medal is awarded by the Optical Society of America for "distinguished work in the field of vision."

**Max Rosenbaum** will serve as the official representative of the American Group Psychotherapy Association at the sixth Inter-American Congress of Psychology in Rio de Janeiro in August 1959.

**George E. Rowland** has formed Rowland and Company in Haddonfield, New Jersey, for human factors engineering, industrial-personnel psychology, and applied physical anthropometry.

**Ernest L. V. Shelley** has been appointed Departmental Supervisor of Treatment and Training in the Michigan Department of Corrections, Lansing, Michigan.

**Herbert K. Stone** has resigned from the Southeast Louisiana Hospital to join the staff of the Atlanta Psychiatric Clinic.

**Joseph Sturm**, formerly at the Brooklyn Community Counseling Center, has been appointed School Psychologist for the Long Beach Public Schools, Long Island.

The University of California, Berkeley conferred an honorary Doctor of Laws degree on **Edward C. Tolman**.

The following personnel changes have occurred in Psychology Services, Department of Medicine and Surgery, Veterans Administration:

**James Armatas**, a graduate of the VA Psychology Training Program, University of Kansas, has been appointed to the Psychology Service, VA Center, Wadsworth, Kansas.

**Thomas E. Atkins** has resigned from the Psychology Staff, VA Hospital, Lebanon, Pennsylvania.

**Philip Brogadir** has been appointed to the Psychology Service, VA Hospital, Northampton, Massachusetts.

**James J. Calvert** has resigned from the Psychology Staff, VA Hospital, Albuquerque, New Mexico.

**J. Edward Connors** has resigned from the Psychology Staff, VA Hospital, Brockton, Massachusetts.

**Wilbert E. Fordyce** has resigned from the Seattle VA Hospital to accept a position at the University of Washington Medical School Hospital.

**Warren Freiband** has been appointed to the Psychology Service, VA Hospital, Knoxville, Iowa.

**Vincent Glaudin** has resigned from the Psychology Staff, VA Mental Hygiene Clinic, Portland, Oregon.

**Donald R. Gorham** has transferred from the Waco VA Center to the Central NP Research Unit, VA Hospital, Perry Point, Maryland.

**Earl G. Guyer** has transferred from the Roanoke VA Hospital to the Psychiatric Evaluation Project, VA Hospital, Fort Lyon, Colorado.

**James Koutrelakos** has been appointed to the Psychology Staff, VA Mental Hygiene Clinic, New York, New York.

**Leonard Krause** has been appointed to the Psychology Staff, VA Hospital, Denver, Colorado.

**Louis J. Moran** has been appointed to the Psychology Service, VA Hospital, Houston, Texas.

**William D. Pollan** has been appointed to the Psychology Staff, VA Hospital, Sheridan, Wyoming.

**Jerome Sattler**, a graduate of the VA Psychology Training Program, University of Kansas, has been appointed to the Psychology Staff, VA Center, Wichita, Kansas.

**Robert T. Sone** has been appointed to the Psychology Service, VA Hospital (Leech Farm Road), Pittsburgh, Pennsylvania.

**George T. Take**, a graduate of the VA Psychology Training Program, University of Kentucky, has been appointed to the Psychology Staff, Gulfport Division, Biloxi, Mississippi.

**Donald M. Taylor** has been appointed to the Psychology Service, VA Hospital, Murfreesboro, Tennessee.

**Joseph J. Vaccaro** has resigned from the Psychology Staff, VA Mental Hygiene Clinic, New York, New York.

Edward J. Wallon, a graduate of the VA Psychology Training Program, Purdue University, has been appointed to the VA Mental Hygiene Clinic, Detroit, Michigan.

The American Institute for Research announces that **Robert L. Weislogel** has become Director of the AIR Western Office recently opened in Santa Barbara, California.

**Edward M. Westburgh** has been elected to the Board of Directors of Leeds & Northrup Company, Philadelphia manufacturers of electronic equipment.

Through the generosity of an anonymous donor, the **American Association for the Advancement of Science** offers an annual prize of \$1,000 for a meritorious essay in sociopsychological inquiry. The contribution should further the comprehension of the psychological-social-cultural behavior of human beings—the relationships of these hyphenated words being an essential part of the inquiry. The prize is offered to encourage studies and analyses of social behavior based on explicitly stated assumption or postulates which lead to experimentally verifiable conclusions or deductions. For further information, write to: Dael Wolfe, Executive Officer; American Association for the Advancement of Science; 1515 Massachusetts Avenue, N.W.; Washington 5, D. C.

The *Office of Social Sciences* of the **National Science Foundation** announces that the next closing date for receipt of basic research proposals in the social sciences is October 1, 1959. Proposals received prior to that date will be reviewed at the fall meeting of the foundation's advisory panel, and disposition will be made approximately four months following the closing date. The Office of Social Sciences supports basic research in anthropology, archaeology, demography, human ecology, sociology, social psychology, economics, economic and social geography, and the history and philosophy of science. Inquiries should be addressed to: National Science Foundation; Washington 25, D. C.

Three **Pi Lambda Theta Fellowships** will be awarded to women of unusual promise or distinction who have already completed at least one year of graduate study and who present a proposal for a piece of work which represents a real contribution to the progress of educational theory or educational

practice. Applications must be submitted not later than December 1, 1959. Application forms and further information concerning the conditions of the awards may be obtained from: Pi Lambda Theta; Portland Building, Room 307; 1129 Vermont Avenue N.W.; Washington 5, D. C.

**John H. Mann**, of New York University, has received a grant from the Russell Sage Foundation for a study of "**The Assessment of Efforts to Change Adult Behavior.**" E. F. Borgatta and O. G. Brim, Jr., of the foundation staff, will be collaborators.

**Binyamin Z. Lebovits** has been awarded an eight-month research grant and leave by Roosevelt University to analyze data collected on psychological background factors associated with heart disease and on the possibility of **diagnosing psychosomatic conditions** through the use of personality tests.

A supplementary grant has been made to Northwestern University by the Carnegie Corporation to support the **educational psychology project** designed to apply the existing and potential resources of basic experimental psychology to the problems of education.

The **Ittleson Family Foundation** of New York has awarded a three-year research grant to the Department of Psychiatry at Temple University Medical Center for follow-up studies on the **effectiveness of psychotherapy** and the predictive value of psychodiagnostic testing for psychotherapeutic progress. Molly Harrower is principal investigator.

The first prospective mothers are now being chosen to take part in a five-year study to evaluate causes of **neurological and sensory disorders** arising during pregnancy and the early newborn period. Sixteen medical centers across the nation are collaborating in a project with the National Institute of Neurological Diseases and Blindness as the coordinator and central laboratory. The study will eventually follow some 40,000 mothers and their infants until they are six years of age.

**Alastair Heron** has been appointed Director of the Medical Research Council's Group for Research on **Occupational Aspects of Aging** at the University of Liverpool. Research areas under investi-

gation include visual and auditory changes with age; thinking, rigidity, and confidence as aspects of adult learning and of industrial training in middle life; attitudes about aging; and preparation for retirement.

The Department of Psychology and Education at Washington College has been given a grant by CIBA Pharmaceutical Products Inc. to facilitate student research in **psychopharmacology**.

Jack A. Holmes, of the School of Education, University of California, Berkeley, has been awarded a contract by the United States Office of Education to test the hypothesis that different individuals are able to read identical materials with the same speed and comprehension by calling upon different sets of subabilities, different amounts of the same subabilities, or a combination of these two.

The Rockefeller Foundation has awarded the following grants:

**Norwood R. Hanson**, Indiana University, in collaboration with **R. L. Gregory**, University of Cambridge (England), to undertake a philosophical analysis of assumptions and reasoning basic to experimental psychology.

**Daniel S. Lehrman**, Rutgers University, for psychological and biological study of instinctive behavior in ring doves.

**Eric H. Lenneberg** has received a grant from the National Institute of Mental Health in support of a five-year study of **speech and language** sponsored by the Children's Medical Center and the Harvard Medical School, Massachusetts.

The Office of Education of the Department of Health, Education, and Welfare is supporting a three-year study, under the direction of James G. Cooper of the Territorial College of Guam, on **teaching language arts** to the non-English speaking children of Guam.

I have been informed by the professor who is currently there on a Fulbright that the University of Karachi (Pakistan) library is lacking in **psychology texts**. Since the United States government will defray the costs of any texts shipped over and left for the host university, I would like to take as many texts in the field as I can. *Those who would consider donating books to the university may send them to me:* James O. Whittaker; Department of Psychology, University of North Dakota; Grand Forks, North Dakota. It is suggested that book donors inscribe their name and institu-

tion inside the book cover, so that students in Pakistan will know who donated the books.

The Psychology Department at **Ohio Wesleyan University** recently moved into new quarters; the department now occupies the ground floor of the new Phillips Hall. In addition to classrooms and offices, approximately 2,000 square feet of floor space is available for laboratory teaching and research.

Representatives from Midwestern universities and field training centers approved by the APA Education and Training Board participated in the Midwest Regional Conference on **Field Training Programs in Clinical Psychology** held in Chicago on March 13-14, 1959. The six major areas of discussion were: relationships of university to field training agencies, predoctoral internship training programs, postdoctoral training programs, variations in predoctoral training programs, recruitment problems, and implications of the Miami Conference for the field training program. The results of the conference will be forthcoming in the near future.

The eighth Annual Conference of the **American Society of Adlerian Psychology** (333 Central Park West; New York 22, New York) was held on May 2, 1959 in New York City.

"Concepts of the Proper Psychologist" was the theme of the **Conference of Psychologists** on May 6-8, 1959 in Ellenville, New York.

"Obtaining Maximum Educational Information from Psychological Evaluations for the Special Education Child" was the topic of the annual Spring Conference of the Maryland State Federation of Chapters of the **Council for Exceptional Children** held on April 25, 1959. For further information, write to: Marian Stratton; 4103 Nicholson Street; Hyattsville, Maryland.

The second Annual Spring Conference of the **Training School at Vineland**, New Jersey, on May 11-12, 1959 was concerned with practical problems of coordinating and integrating all services related to the treatment, training, and management of the mentally retarded.

The **American Arbitration Association** (477 Madison Avenue; New York 22, New York) sponsored a course in labor arbitration on June 7-12, 1959 at Rutgers University. Special workshops were planned for clinical discussion of such labor-

management arbitration issues as discipline and discharge, seniority in layoff, recall and promotion, and job evaluation and wage incentives.

With support from the Office of Vocational Rehabilitation, Los Angeles State College has instituted a graduate program in **Rehabilitation Counseling**.

The eighth National Institutes of Health Lecture on May 5, 1959 was by George Wald, of Harvard University, on "**The Biochemical Evolution of Vision**."

The Annual Meeting of the **Central Neuropsychiatric Association** was held in Chicago on March 19-20, 1959. The topics included practical problems of professional communication, treatment procedures, nonprofit foundations, and education and research in private psychiatric hospitals. For further information, write to: Melvin Herman; 153 Lakeview Avenue; Leonia, New Jersey.

"**The Management of Transference**" was the topic of the June 13 meeting of the Council of Psychoanalytic Psychotherapist (685 West End Avenue; New York 25, New York).

The Annual Meeting of the New York Chapter of the **Society for Projective Techniques** was held on May 23, 1959 in New York City. The Chairman was Fred Brown; the title of the program was "A Survey of Persistent Problems in Psychodiagnostic Evaluation."

The third **International Seminar on Mental Health** started April 23, 1959 under the sponsorship of the Postgraduate Center for Psychotherapy (218 East 70 Street; New York 21, New York).

A workshop on **Play Group Therapy** was conducted by Hiam G. Ginott, April 9-12, 1959, in Richmond, under the sponsorship of the Virginia State Department of Mental Hygiene and Hospitals.

A **workshop in special education**, sponsored by Teachers College, Columbia University, was held at the Woods Schools (Langhorne, Pennsylvania) on June 8-19, 1959.

A pioneering course on "**Brain Mechanisms and Models**" will be offered at Cornell University starting in September 1959. The course, sponsored jointly by the Departments of Psychology, Mathematics, and Zoology, will deal with the relationships between mechanical functioning and the processes of thinking and knowing and with the extent to which man-made mechanisms can duplicate human intellectual processes.

The seventeenth Annual Reading Institute at Temple University will be held in Philadelphia on January 25-29, 1960; the theme will be "**Current Trends in Reading**." Further information may be obtained by writing to: The Reading Clinic, Department of Psychology, Temple University; Philadelphia 22, Pennsylvania.

Boston University announces an **Institute on Rehabilitation of the Emotionally Disturbed**, June 22-July 3, 1959. For further information, write to: Boston University Summer Term; 685 Commonwealth Avenue; Boston 15, Massachusetts.

The third **Annual Institute for School Psychologists** will be held at the Wisconsin Center of the University of Wisconsin on July 9-10, 1959. For further information, write to: T. A. Ringness; School of Education, University of Wisconsin; Madison 6, Wisconsin.

In Beacon, New York, on July 3-24, 1959, the **Academy of Psychodrama and Group Psychotherapy** will conduct a practicum-seminar on the philosophy and methods of psychodrama, sociodrama, role playing, sociometry, and group dynamics. For further information, write to: APGP, Moreno Institute; 259 Wolcott Avenue; Beacon, New York.

Western Reserve University and the Institute of General Semantics announce the sixteenth **Annual Summer Seminar-Workshop in General Semantics** on August 15-31, 1959 in Cleveland, Ohio. For further information and registration forms, write to: Registrar, Institute of General Semantics; Lakeville, Connecticut.

APA Divisions 12 and 13 are co-sponsoring a postdoctoral workshop on September 2, 1959 at the Hebrew Union College in Cincinnati, Ohio. The title is "**Opportunities and Problems for Psychologists in Administration**"; the Chairman is Edward M. Glaser (Glaser, Snowden & Associates; 595 East Colorado Boulevard; Pasadena, California); the participants will be W. J. Humber, Robert L. Kahn, Harold J. Leavitt, and Carroll L. Shartle. A fee of \$15.00 will be payable by each member of the workshop; please make checks in favor of the Division of Clinical Psychology and mail to Edward M. Glaser.

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The **International Congress of Psychology** has been postponed one week. It is now planned

to hold the congress in Cologne, Germany, on July 31–August 6, 1960.

Fred E. Fiedler, of the University of Illinois and currently Fulbright Research Scholar at the University of Amsterdam, gave the invited address at the General Meeting of the **Dutch Psychological Association**, the *Nederlandsch Instituut van Praktiseerende Psychologen*, in Arnhem, Holland, on May 1, 1959—the topic: “Therapists, Bosses, and Significant Others.”

The eleventh Annual General Meeting of the **South African Psychological Association** will

be held on July 1–4, 1959 at the TARA Neuropsychiatric Hospital in Johannesburg, South Africa.

**Ian K. Waterhouse**, of the University of Melbourne, Australia, is currently on a Fellowship at the Center for Advanced Study in the Behavioral Sciences, Stanford, California. His principal interests are in child development and personality.

**Hilde Himmelweit**, Reader in Social Psychology at the University of London, is a Visiting Professor during the spring semester in the Department of Psychology at the University of California, Berkeley. She has just published a four-year inquiry into the effects of television on children.

The General Arrangements for the sixty-seventh Annual Convention of the APA were given beginning on page 208 of the April issue of the *American Psychologist*. Forms for registering for the 1959 Annual Convention in Cincinnati, Ohio, and for making hotel reservations appear beginning on page 327 of this issue of the *American Psychologist*.

## THE 1960 APA DIRECTORY

**T**HIS is the third appearance of the Current Information Blank. It amounts to a call for information for the 1960 *APA Directory*. In September 1956, the Council of Representatives authorized an annual biographical directory of APA members, to be distributed to all members as part of their dues each third year and to be available by subscription in other years. The 1960 edition will be the fourth in this series and the second to receive general distribution.

A printing contract is in effect which enables us to hold the type from which the *Directory* is printed from one year to the next. The annual task of the APA Directory Office is to make only those changes necessary to bring the preceding volume up to date. It is true, however, that we cannot guarantee the accuracy of any member's entry unless the member keeps us informed.

In the "Reader's Guide" of the 1958 *Directory* we asked members for suggestions about how the *Directory* might be made more useful. One repeated suggestion was that we devise a way by which it would be possible to tell at a glance whether or not an entry is up-to-date. We did this in the 1959 *Directory* by inserting the symbol [59] after every entry that was changed or confirmed in that edition. Those changing or confirming their entries in the next *Directory* will find the symbol [60] after their biographies. It will then be possible for the user to tell at a glance just how up-to-date any entry is.

In the past, we have asked members to notify us only if their entries had to be altered. Now that we are indicating the recency of an entry, we must hear from members whether or not changes are necessary: a box has been provided on the Current Information Blank by which a member can confirm his entry if it remains accurate for the next edition.

The APA Directory Office will continue to keep members' APA and divisional membership status up-to-date and to add information about ABEP status and state certification and licensing, *but the responsibility for keeping the remainder of his entry current must rest solely with the individual member.*

One source of inaccuracy in the *Directory* is the failure of members to keep us supplied with current information. Another is editorial or printing errors which, unless called to our attention, will be re-

peated from year to year. **WE AGAIN URGE THAT MEMBERS CHECK THEIR BIOGRAPHICAL LISTINGS AND THEIR LISTINGS IN THE GEOGRAPHICAL AND DIVISIONAL SECTIONS OF THE *DIRECTORY* AND REPORT ANY ERRORS TO US.**

Information received in the APA Directory Office is put on file for inclusion in the next *Directory* to go to press after the change is in the hands of the Editor. Our general policy is that material received by September 15 of any year will appear in the *Directory* of the following year. Members confirming or changing their entries in the 1960 *APA Directory* are asked to send the completed Current Information Blank to the APA Directory Office not later than September 15, 1959. Each member who had a short entry (name and address only) in 1959 will receive a questionnaire by mail.

Changes in standing entries, taken from the Current Information Blank, are entered in the member's biography directly by the Editor. The old policy of sending Confirmation Sheets to the membership is no longer in effect, and it is therefore necessary that those using the questionnaire and the Current Information Blank take pains to be accurate. In order that our arrangements with the printer may be utilized to the best advantage, we reserve the right to exercise editorial judgment in making changes in members' entries. We will, however, always make factual changes. The press does all the proof reading; there is no opportunity for us to make changes once the copy has left the APA Directory Office. This arrangement enables us to save a good deal of time and money, but it prevents us from making last minute changes in set type.

Information about the production of the *Directory*, and a full explanation of editorial policies and procedures, can be found in the "Reader's Guide" of the 1959 edition.

Because the next *Directory* will be distributed to all members of the APA, *it is especially to be desired that everyone return the Current Information Blank this year.* If the usefulness of the *Directory* is not to be impaired, members must keep a continuous check on their listings. Only if this is done will the *Directory* be able to do an adequate job of reflecting the true facts about American psychologists.

APA DIRECTORY

CURRENT INFORMATION BLANK

(Please print or typewrite and complete in full.)

PLEASE CHECK the box opposite that applies to you. If your entry needs to be changed, use this blank in making the necessary changes.

My entry in the 1959 *Directory* is accurate as it stands ..... ☐

My entry should be changed as shown below ..... ☐

FULL NAME AND TITLE: Enclose in parentheses those parts of your name not ordinarily used.

(Last)

(First)

(Middle)

DEGREES RECEIVED: List any earned degrees received since the publication of the last *APA Directory*.

(Degree)

(Date received)

(Institution)

PRESENT POSITIONS: List titles, beginning dates, and employing institutions.

POSITIONS TERMINATED SINCE PUBLICATION OF LAST *DIRECTORY*:

List titles, inclusive dates, and employing institutions.

ADDRESSES: Give mailing address first, followed by business address if different from mailing address.

1.

2.

Return to: Directory Office  
American Psychological Association  
1333 Sixteenth Street, N.W.  
Washington 6, D. C.

(Signature)

(Date)

# Publications of the AMERICAN PSYCHOLOGICAL ASSOCIATION

## *Subscription Rates for 1959*

**American Psychologist.** Official papers of the Association and articles on psychology. Monthly. First issue appears in January. The 1959 volume is Vol. 14. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.00.

**Contemporary Psychology.** Critical reviews of books, films, and research material in the field of psychology. Monthly. First issue appears in January. The 1959 volume is Vol. 4. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.00.

**Journal of Abnormal and Social Psychology.** Original contributions in the field of abnormal and social psychology, and case reports. Bimonthly, two volumes per year. There are three issues in each volume. The issues appear in January, March, May, July, September, and November. The 1959 volumes are Vols. 58 and 59. Subscription: \$16.00 for 2 vols. (Foreign \$16.50). Single copy \$3.00.

**Journal of Applied Psychology.** Applications of psychology to business, industry, and education. Bimonthly. The issues appear in February, April, June, August, October, and December. The 1959 volume is Vol. 43. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

**Journal of Comparative and Physiological Psychology.** Original contributions in the field of comparative and physiological psychology. Bimonthly. The issues appear in February, April, June, August, October, and December. The 1959 volume is Vol. 52. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

**Journal of Consulting Psychology.** Research in clinical psychology: psychological diagnosis, psychotherapy, personality, psychopathology. Bimonthly. The issues appear in February, April, June, August, October, and December. The 1959 volume is Vol. 23. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

**Journal of Educational Psychology.** Studies of learning and teaching: measurement of psychological development, psychology of school subjects, methods of instruction, school adjustment. Bimonthly. The issues appear in February, April, June, August, October, and December. The 1959 volume is Vol. 50. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

**Journal of Experimental Psychology.** Original contributions of an experimental character. Monthly, two volumes per year. There are six issues in each volume. First issue appears in January. The 1959 volumes are Vol. 57 and 58. Subscription: \$16.00 for 2 vols. (Foreign \$16.50). Single copy \$1.50.

**Psychological Abstracts.** Noncritical abstracts of the world's literature in psychology and related subjects. Bimonthly. The issues appear in February, April, June, August, October, and December. The 1959 volume is Vol. 33. Subscription: \$16.00 (Foreign \$16.50). Single copy \$3.00.

**Psychological Bulletin.** Evaluative reviews of research literature, discussions of research methodology in psychology. Bimonthly. The issues appear in January, March, May, July, September, and November. The 1959 volume is Vol. 56. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

**Psychological Monographs: General and Applied.** Longer researches and laboratory studies which appear as units. Published at irregular intervals during the calendar year—about twenty issues per year. The 1959 volume is Vol. 73. Subscription: \$8.00 per volume (Foreign \$8.50). Single copy price varies according to size.

**Psychological Review.** Original contributions of a theoretical nature. Bimonthly. The issues appear in January, March, May, July, September, and November. The 1959 volume is Vol. 66. Subscription: \$8.00 (Foreign \$8.50). Single copy \$1.50.

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Cover pages, table of contents, and index (when there is one) are contained in the last issue of the volume for each journal.

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1333 Sixteenth Street, N.W.  
Washington 6, D. C.

## APA MEMBER ADVANCED REGISTRATION FORM

### SIXTY-SEVENTH ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

*Cincinnati, Ohio, September 3-9, 1959*

Please type or print:

Name: Dr.  
Mr.  
Miss  
Mrs. \_\_\_\_\_  
Last First Middle Initial

Professional Affiliation: \_\_\_\_\_  
(to appear on badge:  
maximum of 20 letters  
per line.) \_\_\_\_\_

\_\_\_\_\_  
(City)

\_\_\_\_\_  
(State)

The following information is requested for the Convention Directory:

1. Expected date of arrival at convention.....

Expected date of departure from convention.....

2. APA membership status:

Fellow..... Member, Student Journal Group.....

Member..... Foreign Affiliate.....

Associate.....

3. Circle division membership(s) 1 2 3 5 7 8 9 10 12 13  
14 15 16 17 18 19 20 21 22

When you arrive at the convention, pick up your badge and convention materials at the **Advanced Registration Desk** and give your Cincinnati address to the receptionist. There will be no additional forms to fill out. There is no registration fee for APA Fellows, Members, Associates, Foreign Affiliates, and Members of the Student Journal Group.

Please send this form as early as possible to:

**APA Housing  
714 Union Central Building  
Cincinnati 2, Ohio**

(Copies of this form may be obtained from the APA Housing or from the APA Central Office.)  
*APA Member Advanced Registration Forms received after August 31 will not be processed for preregistration.*

*Ready March 1959*

## RESEARCH IN PSYCHOTHERAPY

Proceedings of an interdisciplinary conference, Washington, D. C., April 9-12, 1958

ELI A. RUBINSTEIN and MORRIS B. PARLOFF, *Editors*

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Presentations and discussions by leading investigators in psychotherapy research, both psychologists and psychiatrists, combine to produce a critical evaluation of research objectives and methodologies

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Prepared papers by J. C. Whitehorn, J. D. Frank, Lewis Robbins and R. S. Wallerstein, Timothy Leary and Merton Gill, C. R. Rogers, George Saslow and J. D. Matarazzo, J. I. Lacey, E. S. Bordin, and W. U. Snyder present comprehensive descriptions of large-scale research programs and extensive analyses of crucial research problems

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Formal discussion papers by J. M. Butler, David Shakow, Milton Greenblatt, and Maurice Lorr, and informal discussion by all 29 participants, provide expert commentary on present status of research. The summary chapter by the editors is an orderly presentation of the major issues covered by the conference

**Price: \$3.00**

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**Dept. RP**

**1333 Sixteenth Street, N.W.**

**Washington 6, D. C.**

## NONMEMBER ADVANCED REGISTRATION FORM

### SIXTY-SEVENTH ANNUAL CONVENTION OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

*Cincinnati, Ohio, September 3-9, 1959*

Nonmembers of APA are requested to complete this form for advanced registration.

Please type or print:

Name: Dr. \_\_\_\_\_  
Mr. \_\_\_\_\_  
Miss \_\_\_\_\_  
Mrs. \_\_\_\_\_  
Last First Middle Initial

Professional Affiliation: \_\_\_\_\_  
(to appear on badge:  
maximum of 20 letters  
per line.) \_\_\_\_\_  
\_\_\_\_\_  
(City) (State)

The following information is requested for the Convention Directory:

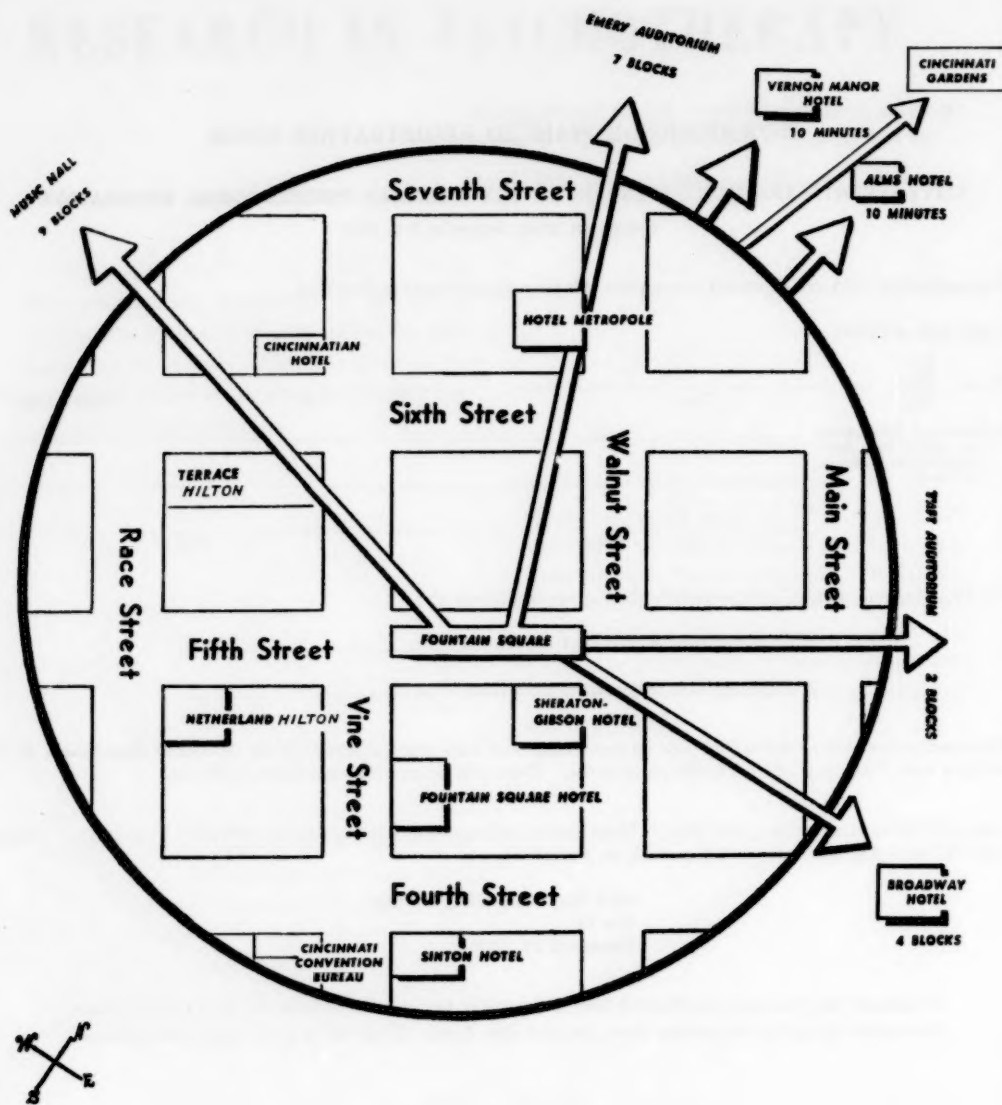
1. Expected date of arrival at convention.....
2. Expected date of departure from convention.....

When you arrive at the convention, pick up your badge and convention materials at the **Advanced Registration Desk** and give your Cincinnati address to the receptionist. There will be no additional forms to fill out.

A fee of \$2.50 must accompany this form. Make checks and money orders payable to: 1959 APA Convention. Please send this form, together with the fee, as early as possible to:

**APA Nonmember Registration**  
**Box 21**  
**Cincinnati 21, Ohio**

(Copies of this form may be obtained from Nonmember Registration or from the APA Central Office)  
*Nonmember Advanced Registration Forms received after August 31 will not be processed for preregistration.*



## HOTEL RESERVATION FORM

Rates are listed below for the Cincinnati hotels. Reservations must be made through APA Housing. Neither rate nor reservation can be guaranteed by APA Housing if reservations are made after **August 3, 1959**. Reservations should be made as early as possible and must be made through:

**APA Housing**  
714 Union Central Building  
Cincinnati 2, Ohio

HOTELS	SINGLES	DOUBLES	TWINS	SUITES
<i>Headquarters:</i>				
Netherland Hilton	\$ 9.00	\$12.50	\$14.00	\$28.00 and up
Sheraton-Gibson	\$ 8.50	\$12.00	\$13.50	\$32.50-\$75.00
Sinton	\$ 8.00	\$11.00	\$13.00	\$20.00-\$28.50
<i>Other Downtown Hotels:</i>				
Broadway	\$ 7.00	\$10.00-\$12.00	\$10.00-\$12.00	\$ —
Cincinnatian	\$ 5.00-\$ 6.00	\$ 6.00-\$ 7.00	\$ 7.00-\$ 8.00	\$ —
Cincinnati Club	\$ 5.00-\$10.00	\$ —	\$ 8.50-\$12.50	\$ —
Fountain Square	\$ 4.50-\$ 6.50	\$ 6.50-\$ 9.50	\$ 8.50-\$ 9.50	\$ —
Metropole	\$ 6.00-\$ 8.50	\$ 9.00-\$12.00	\$ 9.50-\$15.00	\$ —
Terrace Hilton	\$12.25-\$18.25	\$ —	\$16.50-\$22.50	\$30.50 and up
<i>Outlying Hotels:</i>				
Alms	\$ 7.00-\$ 8.00	\$ —	\$ 8.00-\$10.00	\$14.00 and up
Kemper Lane	\$ 7.00-\$ 8.00	\$ 9.00-\$10.00	\$10.00-\$12.00	\$ —
Mariemont	\$ 5.00-\$ 6.00	\$ 7.00-\$ 8.00	\$ —	\$ —
Vernon Manor	\$ 4.00	\$ 5.00-\$ 6.00	\$ 6.00-\$ 9.00	\$12.00 and up

Dormitory Rooms (4 or more to room); per person: \$3.50 at Netherland Hilton  
\$3.50 at Sheraton-Gibson  
\$3.50 at Sinton

See map on facing page for location of hotels.

Make all changes and cancellations through APA Housing.

Please reserve the following:

..... Single(s) for ..... persons at rate \$.....  
 ..... Double(s) for ..... persons at rate \$.....  
 ..... Twin(s) for ..... persons at rate \$.....  
 ..... Suite(s) for ..... persons at rate \$.....

*Hotel:*

First Choice.....  
 Second Choice.....  
 Third Choice.....

Arrival Date..... at ..... A.M.  
P.M. Departure Date..... at ..... A.M.  
P.M.

**Note:** Reservations will not be held beyond 6:00 P.M. except by request.

Room occupants: (Be sure to give the names of all occupants and bracket those sharing a room.)

Name (Please print)	Sex	Address	City	State
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....
.....	.....	.....	.....	.....

Your reservation will be confirmed directly by your hotel.

Mail Confirmation to: .....

Address..... City..... State.....

(Copies of this form may be obtained from the APA Housing or from the APA Central Office.)

# BOOKS, "SEPARATES," PAMPHLETS

(Revised list)

*Available at*

THE AMERICAN PSYCHOLOGICAL ASSOCIATION, INC.

## Books

*Research in Psychotherapy.* 1959. Pp. 293. \$3.00

*School Psychologists at Mid-Century.* 1955 (reprinted 1958). Pp. 230. \$2.75

*Psychology and Mental Health.* 1956. Pp. 154. \$1.75

*America's Psychologists.* 1957. Pp. 247. \$1.00

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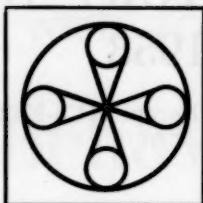
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